# Paper TRADE JOURNAL

MARCH 17, 1949

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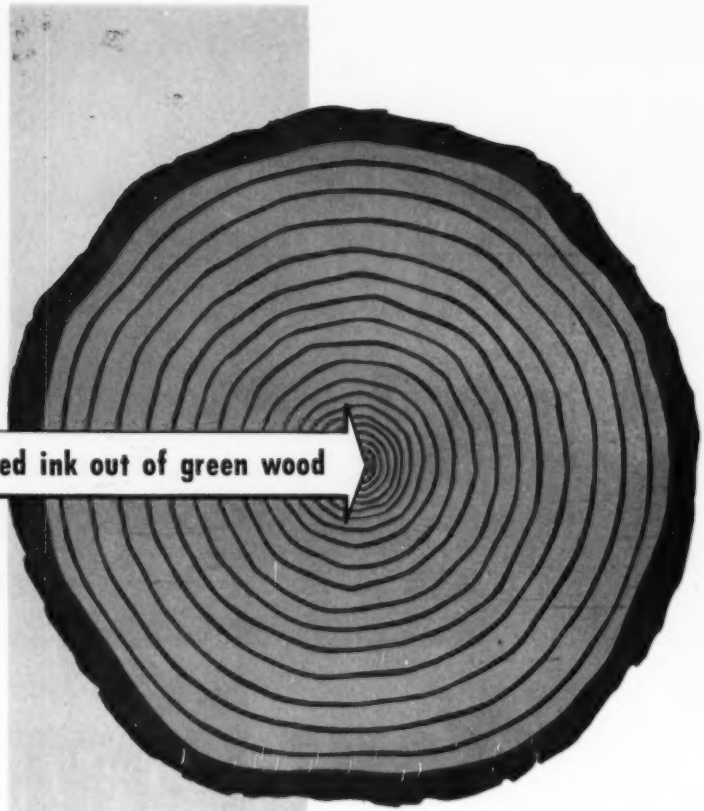

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MEMBER

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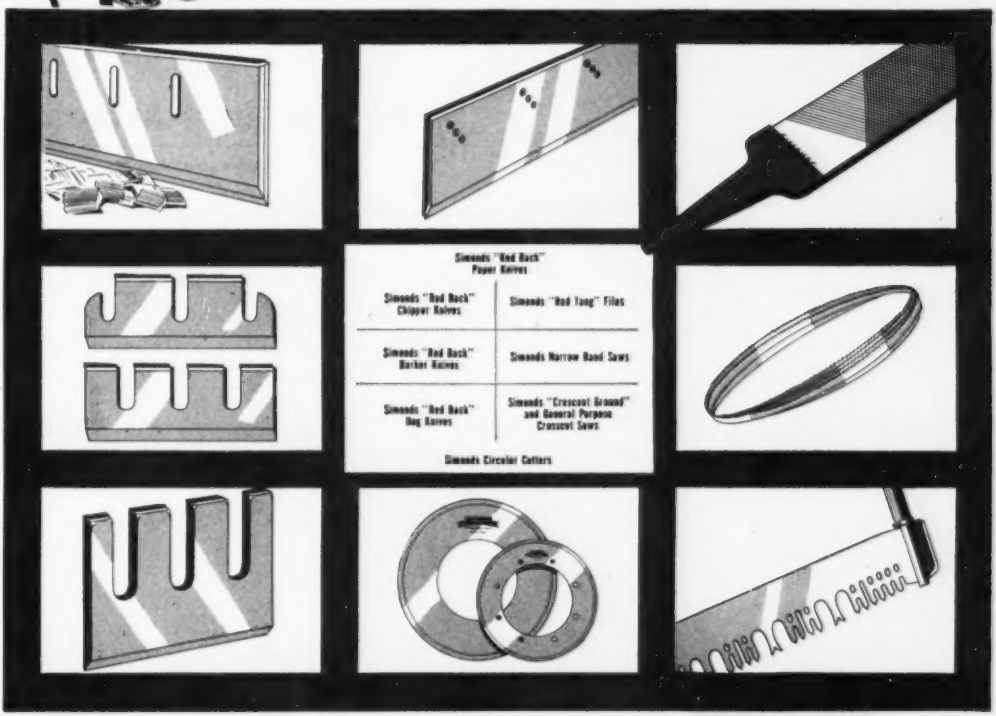
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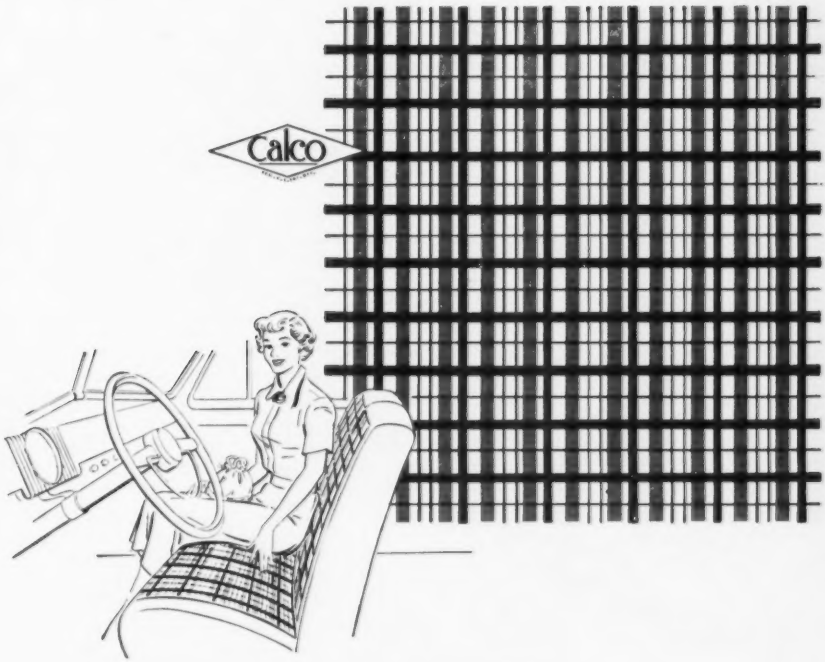


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Paper TRADE JOURNAL

MAR. 17, 1949

VOL. 128, NO. 11

# Rift in Holyoke Power Battle Clouds

HOLYOKE, Mass.—The week ending March 12 was one of surprises and good fortune for Holyoke paper manufacturers. Two developments boosted their hopes that they might retain their power rights on this city's unique three-level canal system.

The first development came during the Federal Power Commission hearings—originally slated to last four days, but which dragged out through nearly four weeks of technical testimony and bitter legal battle. At virtually the climax of the hearings involving power petitions of the privately-owned Holyoke Water Power Co., and the publicly-owned Municipal Gas and Electric Department Judge Maximillian G. Baron, FPC trial examiner, called a sudden halt in the entire proceedings, ruling that the public department had failed to provide the proper data. Judge Baron's ruling was that both sides would have to resubmit their petitions if the power hearings were to start again.

The second development was that 48 hours after the FPC hearings were suspended, the Gas and Electric Commission "clipped the wings" of Manager Francis H. King, instigator of the campaign for public ownership of the hydro-electric power system at the Holyoke Dam.

The action by Judge Baron came after Holyoke paper manufacturers, given their day in court, declared to the FPC through E. C. Tucker, mill executive, that the paper industry would not be able to survive in the event the present canal system is abandoned, as advocated by Manager King.

"We will be in the position of withering and dying on the vine," said Mr. Tucker, vice-president of the Crocker-McElwain Co., and Chemical Paper Mfg. Co., "in the event indentured mill powers are taken away and nothing given in return."

According to Mr. Tucker, the paper mills would have to pay $4,000,000 to accommodate their plants to dry canals. In addition, these same manufacturers would have to white off from their books, as of no value, hydro-electric systems va'ued at $1,500,000.

First news that the Gas and Electric Department intended to abandon the canals came to him at the hearings, Mr. Tucker stated, adding that the figures of $4,000,000 to $1,500,000 were arrived at on the basis of figures used by Patrick J. Kennedy, Jr., engineer for the Gas and Electric Department.

**KENNETH W. LATHAN**

**—vice-president of Moller & Rothe, Inc., New York City, was elected president of the United States Paper Exporters Council, Inc., at its Seventh Annual Meeting at the Uptown Club on March 10, succeeding Harry Bengtsson, president of the Benex Corp. . . . The Council elected as its vice-president, George V. Johnson, secretary of Elof Hansson, Inc., and as secretary-treasurer, Leon Bischoff, managing director of the export department of Marquardt & Co. . . . Elected to the new board of directors in addition to the officers were the retiring president, Mr. Bengtsson; Adalbert Greiner, president of the China-American Paper & Pulp Co. Inc.; Fred C. Strype, Jr., secretary of F. C. Strype, Inc.; and Donald Walker, assistant export manager of the Walker-Goulard-Plehn Co., Inc. . . . Javits & Javits continues as legal adviser to the council.**

It would cost the papermaking trade in Holyoke $762,000 more each year to purchase electricity than if it uses its own hydro installations, Mr. Tucker figured out. Then he pointed out that this amount is more than the whole fine writing paper mills in Holyoke made last year.

Judge Baron ordered the hearings suspended on the grounds that the municipal department's plan—as presented during the four-week session—differed sharply from the plan it had proposed in its formal application. Notable difference was the proposal, contested by the paper manufacturers, to scrap the canal system. The plan to drop the canals also had been opposed by Thomas M. Crum, project analyst for the FPC, who recommended continuation of the canal system in unveiling the commission staff's own plan for the river power development.

Mr. Crum also endorsed the plan of the Holyoke Water Power Co., for development of the hydro-electric potential of the Connecticut. The FPC's plan, as presented by Crum, was virtually identical with the one proposed by the private power company, and which Mr. Crum labeled as economically feasible.

In ruling the hearings suspended, Judge Baron advised the Municipal Gas and Electric Department to revamp its application to suit the case as presented in court.

The G & E Commission's revocation of Mr. King's management authorities made it clear that no modification or additions may be added to the power plan without authority from the entire commission.

Because the two commissioners who revoked King's authority are widely regarded as in strong opposition to the municipal plan, their move apparently has sounded the death knell for the department's proposals to control hydro-electric power at the dam, since they are not expected to give any authority to Mr. King to make the corrections in the application suggested by the FPC, and which would put the municipal department's case in more favorable light with the commission.

# Met. TAPPI Discusses Mating of Paper and Ink

NEW YORK — Seventy-five members and guests of the Metropolitan TAPPI Group met at Fraunces Tavern, March 8, when the program included a symposium on printing entitled "The Mating of Paper and Ink." Milton Zucker, research manager, International Printing Ink Co., acted as moderator. The other members of the napel were Col. J. W. Viner, vice-president of the Aniline Division; O. P. Berberick, Sr., chemist, Letterpress Division; Dr. W. W. Mock, chief chemist, Gravure Division; and L. F. Engelhart, chief chemist, Lithography Division, all of the same firm.

Mr. Zucker gave brief descriptions of the four principal methods of printing and listed them in order of the amount of printing pressure required for each method as follows: (1) Gravure, including rotogravure, steel die and other intaglio methods, requires up to 6,000 PSI; (2) Letterpress, requires 700-2,500 PSI; (3) Aniline, which is a variation of letterpress and which uses rubber plates, requires considerably less pressure than conventional letterpress; (4) Lithography, which requires practically no pressure but is merely a kiss contact between ink and paper.

Dr. Mock described the gravure process. Mr. Berberich described the peculiarities of letterpress printing, listing the most desirable characteristics of paper to be used in this process. The term "aniline printing" is unfortunate and misleading, Mr. Berberich pointed out. This type of printing is better described as letterpress printing with rubber plates. The use of rubber plates allowing a wide range of materials to be printed upon, ranging from soft tissue paper to glassine, cellophane and even metal surfaces.

Mr. Englehart described the offset process as single plane printing, in that the printing surface is neither depressed as with intaglio, nor raised as with letterpress.

The following limitations must be considered when making offset paper: (1) The tack of the ink cannot be appreciably reduced without causing "greasing," therefore the paper must maintain a high pick test, wet or dry; (2) The ink cannot be softened, therefore the ink receptivity of the paper must be uniformly good; (3) Excessive amounts of driers cannot be added to the ink, which makes it necessary for the paper to be absorbent; (4) The paper must not contain alkali or alkaline salts which will neutralize the acid solution on the blanket and thus produce greasing. Other desirable characteristics are high, uniform color and smooth surface.

At the conclusion of the talks by panel members the meeting was thrown open for discussion.

John Calkin, chairman of the group, appointed a committee composed of William R. Willets, William Landes and Richard Bingham to nominate a slate of officers for the election which will be held at the next regular meeting, April 12.

## Waste Paper Standards

NEW YORK—When the Waste Paper Institute of the National Ass'n. of Waste Material Dealers meets in Chicago on March 22, it will have before it for its consideration a report of the Study Committee on Waste Paper Standards and Practices.

The committee, composed of Western dealers and mill representatives, has held 15 meetings since it was formed in September, 1947. It completed its labors about a month ago, and printed copies of the proposed code were sent early this month to waste paper consuming mills through the offices of the National Ass'n. of Waste Material Dealers, Inc., 1109 Times building, New York.

"It may be," says the report, "that a similar Committee of Dealers and Mills would in the near future decide to recommend this new set of Standards and Practices to the industry to replace the antiquated ones, and individual dealers and mills may wish to adopt them. It is also possible that the Standards and Practices may be submitted to the National Bureau of Standards of the U. S. Department of Commerce as were the classifications of iron and steel scrap."

The preamble to the code is as follows: "Basic to the success of any buyer-seller relationship is an atmosphere of 'good faith.' In keeping with this, the following underlying principles have been accepted as necessary to the maintenance of amicable dealings: (1) Arbitrary rejections, deductions and cancellations by the buyer are counter to acceptable good trade practice; (2) It is the responsibility of the seller to use due diligence to ship only properly packed papers and to make shipment during the period specified."

The code is divided into six sections, as follows: (1) The Purchase Agreement; (2) Fulfillment by the Seller; (3) Fulfillment by the Buyer; (4) Miscellaneous Practices; (5) Arbitration; and (6) Grade Definitions. Forty-two grades of waste paper are specified, including such new grades as "super mixed paper," "super news," "super sorted brown kraft" and "super soft white shavings."

## 19 SAFE MONTHS

Lonnie Gibbs (right) of the power plant and recovery room, 1948 winner of the Grossett Paper Mills Safety Plaque, receives the coveted token of distinction from Pete Mizell (left), paper mill superintendent, whose department won it in 1947. Russell Bell (center) safety director, of the Grossett Companies, looks on approvingly. . . . During 1948 the department under the supervision of Mr. Gibbs worked 218,023 man hours with no disabling injuries and only 39 minor injuries. Altogether it has gone 19 months without a single disabling injury. Over the latter period 314,701 man hours were worked at this Grossett, Ark., mill. . . . Mr. Gibbs, attributed this record to three factors: (1) Monthly safety meetings conducted by the shift engineers, wherein the men operating and the maintenance crews are instructed in safe working practices; (2) The general clean-up campaign throughout the mill; and (3) Adequate boiler capacity obtained through the partially completed expansion program of the paper mill. . . . "Now that there is a margin available in power capacity, effort can be expended by the maintenance crew toward eliminating unsafe conditions and equipment."

## Emperor Pulp & Paper Co.

GLENS FALLS, N.Y.—The Emperor Pulp & Paper o., Inc., a newly organized concern, has purchased the Marcellus Falls Paper Mills, Inc., plant at Marcellus Falls.

Directors of the new company are Harold Yanklowitz and Arnold Slawsby, both of the Yanklowitz Waste Co., Inc., Glens Falls, and Joseph R. MacLaren, president of MacLaren, Inc., also of this city. Mr. Yanklowitz, president and general manager of Emperor, said operations at the Marcellus Falls mill will start about March 21. Specialty wrapping papers will be manufactured under the supervision of Carl M. Farnham, superintendent. The mill is equipped with one paper-making machine.

Sales of Emperor's products will be under the supervision of Mr. MacLaren, who is vice-president and sales manager of the company. Mr. Slawsby, secretary and treasurer, will be re-

sponsible for all accounting and finance procedures and is purchasing agent for the firm, assisted by L. E. Day, public accountant.

All sections of the mill's operating machinery are being completely overhauled and rebuilt by the Sandy Hill Iron & Brass Works of Hudson Falls, N.Y., and modern equipment is being installed to insure top quality of products and high efficiency of operation, the company said.

Mr. MacLaren and Mr. Day previously were with the Union Bag & Paper Corp. in executive capacities.

### African Masonite Plant

ESTCOURT, Natal — Masonite Africa, Ltd., Africa's first plant for the manufacture of pressed wood fiber hardboard and insulation board is now in operation here. This newest foreign affiliate of the Masonite Corp. went into production late in February following completion of a large factory that had been under construction since August, 1946. Masonite owns about one-third of the South African company's common stock. Ceremonies marking the formal opening will be held here on April 2.

The plant property at Estcourt contains 87 acres, and factory buildings, including two manufacturing units, cover about 2½ acres. Approximately 300 persons are employed. The company is building 75 houses for employes on an adjacent tract of 450 acres.

Masonite Africa was organized in 1941 under the auspices of the Industrial Development Corp. of South Africa, Ltd. Members of the board of directors are H. C. Payne, representing the Transvaal Mining & Finance Co., chairman; R. Shapiro, representing National Match Co.; A. P. Faikney, representing the British Burmah Petroleum Co.; R. H. Gregorowski, K.C., representing Industrial Development Corp.; and R. S. Dickie. J. H. Wessels is managing director.

### "No Comment" on Rumor

HOLYOKE, Mass.—A rumor afloat on March 10 that the Riverside Division of the American Writing Paper Corp. is no longer to manufacture paper, and that officials propose to close down the division. Vice-President Edward C. Reid said he has "nothing to say" on the rumor that the Riverside division is to close.

The report came on the heels of recent reductions in office personnel, coupled with resignations of two key men in the Crocker Division, and the subsequent transfer of two Riverside officials to fill the Crocker posts.

William G. Powers, Crocker superintendent, and Charles Taugher, assistant superintendent, tendered their immediate resignations, effective immediately. Mr. Powers has been connected with the company for 27 years, and held the Crocker superintendency for two years. Mr. Taugher has been with the company 28 years. The company immediately announced that Henry Coyle, superintendent of the Riverside, and Patrick J. McGinty, his assistant, were moved to fill the Crocker vacancies.

**RALPH J. KRAUT**

**—president and general manager of the Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., has been appointed a director of the Nekoosa-Edwards Paper Co., Port Edwards, Wis. . . . His appointment, effective immediately, was voted by Nekoosa-Edwards on March 5. . . . Mr. Kraut is also a director of the First National Bank of Fond du Lac, Wis.**

# Canadian Wages and Hours

OTTAWA—The average hourly earnings in the pulp and paper products manufacturing industry of Canada advanced again to 105.4 cents at December 1, 1948, compared with 105.2 cents at November 1 and 93.6 cents at December 1, 1947, and the average week salaries and wages also moved up to $48.85 at December 1, 1948, as against $48.82 at November 1 and $44.28 at December 1 a year earlier, according to a report just disclosed by the Canadian Government, with the weekly salaries and wages in this industry amounting to $5,581,249 at December 1, 1948.

The average hours per week reported in this industry at December 1, 1948, was 48.9 against 49.1 at November 1 and 49.7 at December 1, 1947. Employment stood at 141.7, 144.1 and 140.5 at December 1, 1948, November 1, 1948, and December 1, 1947, respectively on the base of June 1, 1941, being equal to 100. Payrolls stood at 232.4, 236.2 and 209.1 on these same dates respectively. The proportion of men employed in this industry dropped to 79.8 percent as against 20.2 percent women at December 1, 1948, whereas on November 1 men comprised 80.3 percent and women 19.7 percent of the workers. On December 1 a year earlier men made up 80 percent and women 20 percent of recorded employment.

In pulp and paper manufacturing industry, the average hourly earnings increased from 112.5 cents at November 1, 1948, to 112.7 cents at December 1, with December 1 a year earlier having been 100.2 cents, and the average weekly salaries and wages amounted to $56.92 at December 1, 1948, as against $51.50 on the same date of the preceding year, with the weekly salaries and wages totaling $2,831,566 at December 1, 1948. The average hours per week reported at December 1, 1948, was 48.9 compared with 49.1 at November 1 and 49.7 at December 1, 1947. Employment stood at 132.7, 138.3 and 136.3 at December 1, 1948, November 1, 1948, and December 1, 1947, respectively, with payrolls being 237.4, 247.5 and 220.5 on these dates respectively. Men comprised 95 percent and women 5 percent of the employees on December 1, 1948, as against 95.2 percent men and 4.8 percent women on November 1, and 94.9 percent men and 5.1 percent women on December 1 a year earlier.

In the paper products manufacturing industry, the average hourly earnings moved up once more to 81.8 cents at December 1, 1948, compared with 81.5 cents on November 1 and 74.4 cents on December 1, 1947, and the average weekly salaries and wages advanced also to $38.91 at December 1 against $38.68 on November 1 and $35.61 at December 1, 1947, with weekly salaries and wages totaling $821,799 at December 1, 1948. The average hours per week reported in this industry was 42.9, 43.1 and 43.8 on December 1, 1948, November 1, 1948, and December 1, 1947. The employment in the industry stood at 167.3, 167.7 and 155.8 at December 1, 1948, November 1, 1948, and December 1, 1947, respectively, and payrolls increased to 268.8, 267.9 and 233.7 on these dates respectively. Male employees declined in proportion to female workers, being 62.1 percent male and 37.9 percent female on December 1, 1948, as against 62.8 percent male and 37.2 percent female on November 1, 1948, with males making up 64.3 percent and females 35.7 percent on December 1 a year earlier.

This report also reveals that the number of employees reported in these industries included 114,262 for the pulp and paper products manufacturing industry, 49,745 for the pulp and paper industry, and 21,122 for the paper products industry at December 1, 1948.

# Bids Opened on GPO 2nd Quarter, 1949, Paper Needs

WASHINGTON — Bids were received on March 7 by the Joint Congressional Committee on Printing for paper for the use of the Government Printing Office for a three months' period beginning April 1, 1949. Awards, announced March 14, are indicated by asterisks (*) before the names of the successful bidders in the tabulation herewith.

### Newsprint

*No. 1*—1,000,000 lbs., 24x36—64; rolls, 19, 24, 36, and 48 ins. wide, 36 inches in diameter (3-inch fiber cores).

| | |
|---|---|
| The Gummed Products Co. | .05625c |
| (Rejected) | |
| Stanford Paper Co. | .0725c |
| (Rejected) | |

### Catalog News

*No. 2*—100,000 lbs., 24x36—45; rolls, 28, 38, and 48 ins. wide, 36 ins. in diameter (3-inch fiber cores). (Weight of cores and wrappers shall be included in the net weight.)

| | |
|---|---|
| * Walker, Goulard Plehn Co. | .0874c |
| Stanford Paper Co. | .09c |

### Machine-Finish Book

*No. 3*—160,000 lbs., 25x38—70; flat, cut any size, min. 21 ins., max. 48 ins.

| | |
|---|---|
| * Bermingham & Prosser Co. | .099c |
| Mead Sales Co. | .0996c |
| Butler Co. | .0998c |
| Paper Corp. of U. S. | .1033c |
| Barton, Duer & Koch Paper Co. | .1161c |
| Mudge Paper Co. | .104c |

*No. 4*—700,000 lbs., 25x38—70; flat, cut 24x38, 28x38, and 38x48 ins.

| | |
|---|---|
| * Bermingham & Prosser Co. | .099c |
| Mead Sales Co. | .0996c |
| Butler Co. | .0998c |
| Paper Corp. of U. S. | .1033c |
| Barton, Duer & Koch Paper Co. | .1161c |
| Stanford Paper Co. | .1249c |
| Mudge Paper Co. | .104c |

*No. 6*—100,000 lbs., 25x38—70; rolls, 28½ ins. wide, 36 ins. in diameter. (3-inch fiber cores).

| | |
|---|---|
| Bermingham & Prosser Co. | .0915c |
| Mead Sales Co. | .0922c |
| Butler Co. | .0923c |
| Paper Corp. of U. S. | .0933c |
| * Walker, Goulard Plehn Co. | .0874c |
| Barton, Duer & Koch Paper Co. | .1075c |
| Stanford Paper Co. | .1163c |
| Mudge Paper Co. | .0965c |

*No. 7*—400,000 lbs., 25x38—70; rolls, 19, and 38 ins. wide, 36 ins. in diameter (3-inch fiber cores).

| | |
|---|---|
| Bermingham & Prosser Co. | .0915c |
| Mead Sales Co. | .0922c |
| Butler Co. | .0923c |
| Central Ohio Paper Co. | .0986c |
| Paper Corp. of U. S. | .0933c |
| * Walker, Goulard Plehn Co. | .0874c |
| Barton, Duer & Koch Paper Co. | .1075c |
| Stanford Paper Co. (100,000 lbs. only) | .1163c |
| Frank Parsons Paper Co. | .1075c |
| Mudge Paper Co. | .0965c |

*No. 9*—400,000 lbs., 25x38—70; rolls, 24, 36, and 48 ins. wide, 36 inches in diameter (3-inch fiber cores).

| | |
|---|---|
| Bermingham & Prosser Co. | .0915c |
| Mead Sales Co. | .0922c |
| Butler Co. | .0923c |
| Central Ohio Paper Co. | .0986c |
| Paper Corp. of U. S. | .0933c |
| * Walker, Goulard Plehn Co. | .0874c |
| Barton, Duer & Koch Paper Co. | .1075c |
| Frank Parsons Paper Co. | .1075c |
| Mudge Paper Co. | .0965c |

### English-Finish Book

*No. 10*—140,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 48 ins.

| | |
|---|---|
| * Stanford Paper Co. | .09c |

### Machine-Finish Book End Paper

*No. 17*—40,000 lbs., 25x38—160; flat, cut 38x50 ins.

| | |
|---|---|
| Mead Sales Co. | .1088c |
| Walker, Goulard Plehn Co. | .1197c |
| * Stanford Paper Co. | .0948c |

### Offset Book

*No. 18*—300,000 lbs., 25x38—80; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

| | |
|---|---|
| Butler Co. | .1074c |
| Paper Corp. of U. S. | .1134c |
| * Walker, Goulard Plehn Co. | .1047c |
| R. P. Andrews Paper Co. | .11c |
| Mudge Paper Co. | .1149c |
| John W. McNeil, Inc. | .117c |
| Whitaker Paper Co. | .1097c |

*No. 19*—900,000 lbs., 25x38—100; flat, cut any size, min. width, 24 ins., max. width 48 ins., the grain to run lengthwise of the sheet.

| | |
|---|---|
| Bermingham & Prosser Co. | .097c |
| Butler Co. | .0949c |
| Central Ohio Paper Co. (200,000 lbs. only) | .1079c |
| Paper Corp. of U. S. | .1082c |
| * Walker, Goulard Plehn Co. | .0946c |
| R. P. Andrews Paper Co. | .1083c |
| Stanford Paper Co. | .12c |
| Frank Parsons Paper Co. | .1143c |
| Mudge Paper Co. | .103c |
| Whitaker Paper Co. | .0961c |

*No. 20*—40,000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 ins., the grain to run lengthwise of the sheet.

| | |
|---|---|
| Butler Co. | .1034c |
| Paper Corp. of U. S. | .1049c |
| * Walker, Goulard Plehn Co. | .0974c |
| R. P. Andrews Paper Co. | .1038c |
| Stanford Paper Co. | .114c |

### Antique Book

*No. 21*—50,000 lbs., 25x38—90; flat, cut 32x42, 33x43, and 38x50 ins.

| | |
|---|---|
| * Bermingham & Prosser Co. | .09c |
| Butler Co. | .0918c |
| Paper Corp. of U. S. | .107c |
| R. P. Andrews Paper Co. | .0921c |
| Wilcox Walter Furlong Paper Co. | .1075c |
| Barton, Duer & Koch Paper Co. | .1035c |
| Stanford Paper Co. | .09c |

*No. 22*—150,000 lbs., 25x38—120; flat, cut 32x42, 33x43, and 38x50 ins.

| | |
|---|---|
| * Bermingham & Prosser Co. | .09c |
| Mead Sales Co. | .1088c |
| Butler Co. | .0918c |
| Paper Corp. of U. S. | .104c |
| R. P. Andrews Paper Co. | .0921c |
| Wilcox Walter Furlong Paper Co. | .1035c |
| Barton, Duer & Koch Paper Co. | .1035c |
| Stanford Paper Co. | .09c |
| Whitaker Paper Co. | .1025c |

### 50% Antique Book

*No. 26*—40,000 lbs., 25x38—80; flat, cut 32x48 and 38x48 ins.

| | |
|---|---|
| Paper Corp. of U. S. | .1557c |
| * Bulkley Dunton, Inc. | .1502c |
| Walker, Goulard Plehn Co. | .1699c |
| Howard Paper Mills (Aetna Div.) | .1589c |
| John W. McNeil, Inc. | .1636c |

*No. 27*—20,000 lbs., 25x38—80. Shall be suitable for writing on with ink. Flat, cut 22¾x31 ins.

| | |
|---|---|
| Paper Corp. of U. S. | .1557c |
| * Bulkley Dunton, Inc. | .1502c |
| Walker, Goulard Plehn Co. | .1699c |
| Howard Paper Mills (Aetna Div.) | .1589c |
| John W. McNeil, Inc. | .1644c |

### 50% Laid Antique Book

*No. 29*—20,000 lbs., 25x38—140; flat, cut 38x48 ins.; the laid marks to run the 38-inch direction of the sheet; the grain and chain marks to run lengthwise of the sheet.

| | |
|---|---|
| Paper Corp. of U. S. | .1729c |
| * Walker, Goulard Plehn Co. | .1449c |
| Barton, Duer & Koch Paper Co. | .1449c |
| Howard Paper Mills (Aetna Div.) | .1498c |
| John W. McNeil, Inc. | .1588c |

### Water Resistant (Text) Book

*No. 30*—50,000 lbs., 25x38—120; flat, cut 32x42 and 35x45 ins.

| | |
|---|---|
| * Paper Corp. of U. S. | .1395c |
| Barton, Duer & Koch Paper Co. | .145c |
| Stanford Paper Co. | .1535c |

### Supercalendered Book

*No. 33*—300,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 48 ins.

| | |
|---|---|
| * Bermingham & Prosser Co. | .10c |
| Mead Sales Co. | .102c |
| Butler Co. | .1016c |
| R. P. Andrews Paper Co. | .1022c |
| Mudge Paper Co. | .1025c |

*No. 34*—200,000 lbs., 25x38—90; rolls, 28½ and 38 ins. wide, 36 ins. in diameter (3-inch fiber cores).

| | |
|---|---|
| * Bermingham & Prosser Co. | .0875c |
| Mead Sales Co. | .95c |
| Butler Co. | .0894c |
| R. P. Andrews Paper Co. | .0896c |
| Mudge Paper Co. | .09c |

### Coated Book

*No. 35*—600,000 lbs., 25x38—100; flat, cut any size, min. width 24 ins., max. width 48 ins.

| | |
|---|---|
| * Walker, Goulard Plehn Co. | .0998c |
| R. P. Andrews Paper Co. | .1005c |
| Barton, Duer & Koch Paper Co. | .1005c |
| Stanford Paper Co. | .103c |
| Frank Parsons Paper Co. | .1009c |

*No. 36*—100,000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 ins.

| | |
|---|---|
| Mead Sales Co. | .1045c |
| The Gummed Products Co. (58,000 lbs. only) | .1255c |
| * Walker, Goulard Plehn Co. | .0998c |
| R. P. Andrews Paper Co. | .1005c |
| Barton, Duer & Koch Paper Co. | .1005c |
| Stanford Paper Co. | .103c |
| Frank Parsons Paper Co. | .1009c |

### Coated Book

*No. 39*—300,000 lbs., 25x38—140; flat, cut 28x41, 32x42, 38x48, 39x50 and 41x52 ins.; the grain to run lengthwise of the sheet.

| | |
|---|---|
| * Bermingham & Prosser Co. | .1165c |
| Mead Sales Co. | .127c |
| * Consolidated Water Power & Paper Co. | .1143c |
| John F. Post, Inc. | .1292c |
| Barton, Duer & Koch Paper Co. | .149c |

### Litho Coated Book

*No. 42*—20,000 lbs., 25x38—140; flat, cut 32x42, 38x48, 39x50 and 41x52 ins.; the grain to run lengthwise of the sheet.

| | |
|---|---|
| * Bermingham & Prosser Co. | .135c |
| Butler Co. | .141c |
| Stanford Paper Co. | .14c |

### Chemical Wood Mimeograph, White and Colored

*No. 44*—2,000,000 lbs., white, No. 40. Flat, cut 28½x34½, 32½x42½, 38x48½ ins. Grain: size 28½x34½ ins., to run the 28½ inch way; size 32½x42½ to run the 42½ inch way; size 38x48½ ins., to run the 38 inch way.

| | |
|---|---|
| Bermingham & Prosser Co. | .0887c |
| Graham Paper Co. (200,000 lbs. only) | .104c |

Butler Co. ..... .0897c
Old Dominion Paper Co. (1,000,000 lbs. only) ..... .093149c
Old Dominion Paper Co. (1,000,000 lbs. only) ..... .094979c
Walker, Goulard Plehn Co. ..... .0896c
* R. P. Andrews Paper Co. ..... .0852c
Barton, Duer & Koch Paper Co. .. .1063c
Stanford Paper Co. ..... .0928c
Mudge Paper Co. (1,000,000 lbs. only) ..... .0937c
Whitaker Paper Co. ..... .1002c

*No. 45*—80,000 lbs., blue, buff, green, pink, and yellow, No. 40. Flat, cut 32½x42½, and 38x48½ ins. Grain: Size 32½x42½ to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way. Min. order, one color, 10,000 lbs.

* Bermingham & Prosser Co. ..... .0937c
Butler Co. ..... .1012c
Old Dominion Paper Co. ..... .102648c
* Walker, Goulard Plehn Co. ..... .0998c

### 25% Mimeograph

*No. 46*—500,000 lbs., No. 40; Flat, cut 28½x34½, 32½x42½, 34½x44, 38x48½, and 40½x42½ ins. Grain: Size 28½x34½ ins. to run the 28½ inch way; sizes 32½x42½ and 40½x42½ ins. to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way.

Paper Corp. of U. S. ..... .1342c
* Walker, Goulard Plehn Co. ..... .1094c
R. P. Andrews Paper Co. ..... .1129c
* Howard Paper Mills (Aetna Div.) (250,000 lbs. only) ..... .1088c
Howard Paper Mills (Aetna Div.) (250,000 lbs. only) ..... .1097c

### Duplicator Copy Paper, Liquid Process, White and Colored

*No. 47*—200,000 lbs., white, No. 40. Flat, cut 32x42 and 34x44 ins.; the grain to run lengthwise of the sheet.

* Paper Corp. of U. S. ..... .1135c
Eastern Corp. ..... .122c
Cauthorne Paper Co. ..... .1276c
Walker, Goulard Plehn Co. ..... .1239c
Whitaker Paper Co. ..... .1324c
Stanford Paper Co. ..... .1555c
John W. McNeil, Inc. ..... .117c

*No. 48*—100,000 lbs., pink, yellow, green and blue, No. 40; flat; cut 32x42, 34x44, and 40x52½ ins.; the grain to run lengthwise of the sheet.

Paper Corp. of U. S. ..... .1295c
* Eastern Corp. ..... .129c
Cauthorne Paper Co. ..... .1348c
Walker, Goulard Plehn Co. ..... .1294c
Stanford Paper Co. ..... .163c

### Blue USMO Safety Writing

*No. 49*—250,000 lbs., No. 32. Rolls, 22 ins. wide, 24 ins. in diameter (3-inch fiber cores).

Walker, Goulard Plehn Co. (50,000 lbs. only) ..... .1887c
Walker, Goulard Plehn Co. (50,000 lbs. only) ..... .1892c
Walker, Goulard Plehn Co. (50,000 lbs. only) ..... .1902c
* D. L. Ward Co. ..... .1881c
* R. P. Andrews Paper Co. ..... .1877c

### Chemical Wood Writing, White and Colored

*No. 51*—200,000 lbs., white, No. 26, flat, cut any size, min. width 21 ins., max. width 48 ins.

Central Ohio Paper Co. ..... .1186c
* Paper Corp. of U. S. ..... .11c
Walker, Goulard Plehn Co. ..... .116c
Whitaker Paper Co. ..... .1157c

*No. 52*—2,000,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Graham Paper Co. (100,000 lbs. only) ..... .1117c
Central Ohio Paper Co. (400,000 lbs. only) ..... .1098c
Paper Corp. of U. S. ..... .118c
Walker, Goulard Plehn Co. (1,000,000 lbs. only) ..... .0991c
D. L. Ward Co. (500,000 lbs. only) .1028c
* R. P. Andrews Paper Co. (600,000 lbs. only) ..... .0942c
Barton, Duer & Koch Paper Co. (400,000 lbs. only) ..... .105c
Barton, Duer & Koch Paper Co. (1,600,000 lbs. only) ..... .1255c
Stanford Paper Co. (600,000 lbs. only) ..... .128c
Frank Parsons Paper Co. ..... .1085c
Mudge Paper Co. (400,000 lbs. only) ..... .1074c
* Whitaker Paper Co. ..... .0967c

*No. 53*—2,000,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Graham Paper Co. (200,000 lbs. only) ..... .104c
Paper Corp. of U. S. ..... .114c
Bulkley Dunton, Inc. ..... .0982c
Walker, Goulard Plehn Co. ..... .0991c
* R. P. Andrews Paper Co. ..... .0882c
Wilcox Walter Furlong Paper Co. (1,200,000 lbs. only) ..... .0979c
Barton, Duer & Koch Paper Co. .. .1195c
Whitaker Paper Co. ..... .0949c

*No. 54*—600,000 lbs., white, No. 32. Rolls, min. width 16 ins., 36 ins. in diameter, max. width 48 ins. (3-inch fiber cores).

Graham Paper Co. (400,000 lbs. only) ..... .1017c
Paper Corp. of U. S. ..... .085c
Bulkley Dunton, Inc. ..... .0909c
Walker, Goulard Plehn Co. ..... .0888c
* R. P. Andrews Paper Co. ..... .0797c
Barton, Duer & Koch Paper Co. .. .115c
Whitaker Paper Co. ..... .0873c

*No. 55*—200,000 lbs., white, No. 40; rolls, min. width 16 ins., 36 ins. in diameter, max. width 48 ins. (3-inch fiber cores).

Graham Paper Co. ..... .0959c
Pulp & Paper Trading Co. ..... .1062c
Paper Corp. of U. S. ..... .1004c
Bulkley Dunton, Inc. ..... .0858c
Walker, Goulard Plehn Co. ..... .0888c
* R. P. Andrews Paper Co. ..... .0737c
Barton, Duer & Koch Paper Co. .. .1099c
Whitaker Paper Co. ..... .0859c

*No. 56*—20,000 lbs., blue, buff, green, pink, salmon, and yellow, No. 26. Flat, cut any size, min. width 21 ins., max. width 48 ins.

* Walker, Goulard Plehn Co. ..... .1333c

*No. 57*—500,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No 32; flat, cut any size, min. width 21 ins., max. width 48 ins. Min. order, one color, 10,000 lbs.

Butler Co. ..... .1148c
* Walker, Goulard Plehn Co. ..... .1066c

*No. 58*—200,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins. Min. order, one color, 10,000 lbs.

* Walker, Goulard Plehn Co. ..... .1066c
Barton, Duer & Koch Paper Co. .. .1137c

*No. 60*—40,000 lbs., white, No. 24. Rolls, 22 inch, 34 to 36 ins. in diameter (3-inch fiber cores).

* Bulkley Dunton, Inc. ..... .101c
Walker, Goulard Plehn Co. ..... .1148c
Stanford Paper Co. ..... .1262c

*No. 61*—40,000 lbs., white, No. 30, rolls, 22 ins. wide, 34 to 36 ins. in diameter (3-inch fiber cores).

Pulp & Paper Trading Co. ..... .1062c
* Bulkley Dunton, Inc. ..... .0934c
Walker Goulard Plehn Co. ..... .1148c
Stanford Paper Co. ..... .1187c

### 50% Lithograph-Finish Map

*No. 70*—10,000 lbs., No. 32. Flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Paper Corp. of U. S. ..... .1607c
Walker, Goulard Plehn Co. ..... .157c
Franklin Research Co. ..... .2035c
* Barton, Duer & Koch Paper Co. .. .155c
Stanford Paper Co. ..... .1577c
Howard Paper Mills (Aetna Div.) .1583c
John W. McNeil, Inc. ..... .1597c

*No. 71*—55,000 lbs., No. 40, flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Paper Corp. of U. S. ..... .1557c
Walker, Goulard Plehn Co. ..... .154c
Franklin Research Co. ..... .2035c
Barton, Duer & Koch Paper Co. .. .151c
Stanford Paper Co. ..... .1557c
* Howard Paper Mills (Aetna Div.) .1507c
John W. McNeil, Inc. ..... .1546c

### High Wet Strength Map

*No. 78*—170,000 lbs., No. 48; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Bermingham & Prosser Co. (100,000 lbs. only) ..... .1567c
Bermingham & Prosser Co. (70,000 lbs. only) ..... .1597c
* Cauthorne Paper Co. ..... .14747c
Walker, Goulard Plehn Co. ..... .1484c
Barton, Duer & Koch Paper Co. .. .1476c
Stanford Paper Co. ..... .18c

### 100% White Chart, Lithograph-Finish

*No. 82*—10,000 lbs., No. 96. Flat, cut any size, min. width 22 ins., max. width 46 ins.; the grain to run lengthwise of the sheet unless otherwise specified.

* Walker, Goulard Plehn Co. ..... .2439c
R. P. Andrews Paper Co. ..... .321c
Barton, Duer & Koch Paper Co. .. .285c
Stanford Paper Co. ..... .2794c
Frank Parsons Paper Co. ..... .259c

### Chemical Wood Manifold, White and Colored

*No. 85*—30,000 lbs., white, No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.

Graham Paper Co. ..... .1375c
* Paper Corp. of U. S. ..... .1325c
Walker, Goulard Plehn Co. ..... .135c
Frank Parsons Paper Co. ..... .14c

*No. 84*—20,000 lbs., white, No. 18, rolls 22 ins. wide, (3-inch fiber cores).

Graham Paper Co. ..... .125c
* Walker, Goulard Plehn Co. ..... .1246c
Frank Parsons Paper Co. ..... .13c

### 50% Manifold, White and Colored

*No. 86*—25,000 lbs., white, No. 14, flat, cut 32x42 ins. Min. order 10,000 lbs.

* Graham Paper Co. ..... .1859c
Walker, Goulard Plehn Co. ..... .2883c
R. P. Andrews Paper Co. ..... .294c
Barton, Duer & Koch Paper Co. .. .195c
Stanford Paper Co. ..... .2385c

*No. 87*—60,000 lbs., white, No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.

Graham Paper Co. ..... .1859c
Old Dominion Paper Co. ..... .209386c
Paper Corp. of U. S. ..... .2254c
Walker, Goulard Plehn Co. ..... .2589c
R. P. Andrews Paper Co. ..... .2635c
* Barton, Duer & Koch Paper Co. .. .1835c
Stanford Paper Co. ..... .185c
Mudge Paper Co. ..... .1984c

### 50% White Glazed Manifold

*No. 91*—20,000 lbs., No. 16. Flat, cut 32x42 ins. Min. order, 20,000 lbs.

Graham Paper Co. ..... .2149c
Butler Co. ..... .2215c
Paper Corp. of U. S. ..... .2446c
Walker, Goulard Plehn Co. ..... .3072c
R. P. Andrews Paper Co. ..... .2956c
* Barton, Duer & Koch Paper Co. .. .2075c
Stanford Paper Co. ..... .22c

### Chemical Wood Bond, White and Colored

*No. 102*—150,000 lbs., white, No. 40, flat, cut any size, min. width 21 ins., max. width 38 ins.

Central Ohio Paper Co. ..... .1198c
Eastern Corp. ..... .122c
* Walker, Goulard Plehn Co. ..... .1144c
Whitaker Paper Co. ..... .1174c

### 25% Bond, White and Colored

*No. 105*—80,000 lbs., white, No. 26. Flat, cut any size, min. width 21 ins., max. width 48 ins.

Wilcox Walter Furlong Paper Co. .1672c
Barton, Duer & Koch Paper Co. .. .154c

*(Continued on page 16)*

# GPO Bids and Awards

*(Continued from page 15)*

Stanford Paper Co. ..... .154c
* Howard Paper Mills (Aetna Div.) .1537c
Frank Parsons Paper Co. ..... .1649c

*No. 106*—600,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.
Mead Sales Co. (100,000 lbs. only) .1373c
Mead Sales Co. ..... .1389c
Mead Sales Co. ..... .1409c
Wilcox Walter Furlong Paper Co. .1488c
* Howard Paper Mills (Aetna Div.) (300,000 lbs. only) ..... .1345c
* Howard Paper Mills (Aetna Div.) (300,000 lbs. only) ..... .1355c
Frank Parsons Paper Co. ..... .1502c
Mudge Paper Co. (100,000 lbs. only) ..... .1373c
Mudge Paper Co. (100,000 lbs. only) ..... .1389c
Mudge Paper Co. (100,000 lbs. only) ..... .1409c

*No. 109*—600,000 lbs., No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.
Mead Sales Co. (100,000 lbs. only) .13179c
Mead Sales Co. ..... .13279c
Butler Co. (100,000 lbs. only) ... .13179c
Butler Co. (100,000 lbs. only) ... .13279c
Butler Co. (100,000 lbs. only) .. .1334c
Butler Co. (100,000 lbs. only) ... .1349c
Wilcox Walter Furlong Paper Co. .1443c
* Howard Paper Mills (Aetna Div.) (300,000 lbs. only) ..... .1297c
* Howard Paper Mills (Aetna Div.) (300,000 lbs. only) ..... .1307c
Frank Parsons Paper Co. ..... .1439c

*No. 111*—60,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 40. Flat, cut any size, min. width 21 ins., max. width 48 ins.
Walker, Goulard Plehn Co. ..... .1439c
Barton, Duer & Koch Paper Co. .139c
Frank Parsons Paper Co. ..... .1448c
John W. McNeil, Inc. ..... .1369c
* Howard Paper Mills (Aetna Div.) .1343c

### 100% White Bond

*No. 150*—30,000 lbs., No. 40, flat, cut any size, min. width 16 ins., max width 38 ins. Min. order, 2,000 lbs.
* Walker, Goulard Plehn Co. ..... .2439c
R. P. Andrews Paper Co. ..... .3018c
Barton, Duer & Koch Paper Co. .244c
Stanford Paper Co. ..... .29c
Mudge Paper Co. ..... .2594c

### Chemical Wood White Ledger

*No. 150*—100,000 lbs., No. 48. Flat, cut any size, min. width 17 ins., max. width 48 ins.
Central Ohio Paper Co. ..... .1185c
Pulp & Paper Trading Co. ..... .1196c
Eastern Corp. ..... .122c
Cauthorne Paper Co. ..... .1305c
Walker Goulard Plehn Co. ..... .1146c
D. L. Ward Co. ..... .1128c
Wilcox Walter Furlong Paper Co. .1264c
Barton, Duer & Koch Paper Co. .1228c
Stanford Paper Co. ..... .1194c
* Mudge Paper Co. ..... .1126c
Whitaker Paper Co. ..... .1199c

*No. 151*—50,000 lbs., No. 64, flat, cut any size, min. width 17 ins., max. width 48 ins.
Pulp & Paper Trading Co. ..... .1227c
Old Dominion Paper Co. ..... .14274c
Eastern Corp. ..... .122c
Cauthorne Paper Co. ..... .1305c
Walker, Goulard Plehn Co. ..... .1146c
Barton, Duer & Koch Paper Co. .1228c
Stanford Paper Co. ..... .1189c
* Mudge Paper Co. ..... .1126c
Whitaker Paper Co. ..... .1199c

*No. 153*—20,000 lbs., No. 88. Flat, cut any size, min. width 17 ins., max. width 48 ins.
Pulp & Paper Trading Co. ..... .1227c
Eastern Corp. ..... .122c
* Walker, Goulard Plehn Co. ..... .1146c
Wilcox Walter Furlong Paper Co. .1255c
* Stanford Paper Co. ..... .1189c

### 25% Ledger, White and Colored

*No. 154*—100,000 lbs., white, No. 48; flat, cut 28x34,32x42, 34x44, and 38x48 ins., Min. order, 10,000 lbs.
Butler Co. ..... .14139c
Paper Corp. of U. S. ..... .1522c
Stanford Paper Co. ..... .1377c
* Howard Paper Mills (Aetna Div.) .1367c
Frank Parsons Paper Co. ..... .1413c

*No. 155*—50,000 lbs., white, No. 64, flat, cut 28x34, 32x42, 34x44 and 38x48 ins. Min. order 10,000 lbs.
Bermingham & Prosser Co. ..... .14139c
Paper Corp. of U. S. ..... .1522c
* Stanford Paper Co. ..... .1367c
Howard Paper Mills (Aetna Div.) .1384c
Frank Parsons Paper Co. ..... .1403c

*No. 156*—50,000 lbs., white, No. 88, flat, cut 28x34, 32x42, 34x44 and 38x48 ins. Min. order 10,000 lbs.
Paper Corp. U. S. ..... .1522c
* Stanford Paper Co. ..... .1357c
Howard Paper Mills (Aetna Div.) .1384c
Frank Parsons Paper Co. ..... .1403c
Mudge Paper Co. ..... .1464c

*No. 157*—50,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 64. Flat, cut 34x44 ins. Min order, one color, 10,000 lbs.
Baxter Paper Co. ..... .1469c
Paper Corp. of U. S. ..... .1576c
Cauthorne Paper Co. ..... .1582c
Barton, Duer & Koch Paper Co. .1445c
* Stanford Paper Co. ..... .1427c
Howard Paper Mills (Aetna Div.) .1457c
John W. McNeil, Inc. ..... .1434c

*No. 158*—30,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 88. Flat, cut 34x44 ins. Min. order, one color, 10,000 lbs.
Paper Corp. of U. S. ..... .1576c
Baxter Paper Co. ..... .1469c
Cauthorne Paper Co. ..... .1594c
Barton, Duer & Koch Paper Co. .1445c
* Stanford Paper Co. ..... .1417c
Howard Paper Mills (Aetna Div.) .1457c
Mudge Paper Co. ..... .1504c

### 100% White Ledger

*No. 177*—10,000 lbs., No. 64, flat, cut 28x34, 32x42 and 34x44 ins. Min. order, 10,000 lbs.
* Walker, Goulard Plehn Co. ..... .2459c
R. P. Andrews Paper Co. ..... .2903c
Barton, Duer & Koch Paper Co. . .269c
Stanford Paper Co. ..... .286c
Frank Parsons Paper Co. ..... .259c
Mudge Paper Co. ..... .2694c

### Chemical Wood, White and Colored Index

*No. 182*—150,000 lbs., white, 25½x30½—220; flat, cut 34x44 ins., with projecting colored paper marker between each 100 sheets. Min. order, 10,000 lbs.
Pulp & Paper Trading Co. ..... .1062c
Walker, Goulard Plehn Co. ..... .1094c
* Whitaker Paper Co. ..... .1639c

*No. 183*—40,000 lbs., white, 25½x30½—280; flat, cut 34x44 ins., with projecting colored paper marker between each 100 sheets. Min. order, 10,000 lbs.
Pulp & Paper Trading Co. ..... .1142c
Walker, Goulard Plehn Co. ..... .1094c
* Whitaker Paper Co. ..... .1039c

*No. 185*—40,000 lbs., buff, single-ply; 25½x30½—220; flat, cut 32x42 ins., with projecting colored-paper marker between each 100 sheets.
Pulp & Paper Trading Co. ..... .1198c
* Walker, Goulard Plehn Co. ..... .1194c

### 50% Index, White and Colored

*No. 188*—100,000 lbs., white, 25½x30½—220; flat, cut 32x42, and 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.
Butler Co. ..... .1492c
Walker, Goulard Plehn Co. ..... .1434c
* Barton, Duer & Koch Paper Co. .1429c
Howard Paper Mills (Aetna Div.) .1439c
Mudge Paper Co. ..... .1702c

*No. 191*—100,000 lbs., blue, buff, cherry, fawn, green, pink, salmon, and yellow; 25½x30½—220; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, 10,000 lbs.
Butler Co. ..... .1543c
Walker, Goulard Plehn Co. ..... .1474c
* Barton, Duer & Koch Paper Co. .. .1465c
Howard Paper Mills (Aetna Div.) .1488c
Mudge Paper Co. ..... .1748c

### 100% White Index

*No. 196*—50,000 lbs., 25½x30½—250; flat, cut 20¾x30 ins.
Paper Corp. of U. S. ..... .2512c
Walker, Goulard Plehn Co. ..... .2439c
R. P. Andrews Paper Co. ..... .2819c
* Barton, Duer & Koch Paper Co. .. .2415c
Stanford Paper Co. ..... .268c
Frank Parsons Paper Co. ..... .259c

### Coated Cover, White and Colored

*No. 200*—25,000 lbs., white, 20x26—120; flat, cut 26½x41 and 34x44 ins.; the grain to run lengthwise of the sheet. Min. order, 10,000 lbs.
Butler Co. ..... .1365c
* Walker, Goulard Plehn Co. ..... .1299c
Barton, Duer & Koch Paper Co. .. .1475c

### Antique-Finish Cover, White and Colored

*No. 202*—25,000 lbs., white, 20x26—100. Flat, cut 25¼x39 inches.
Marquette Paper Co. ..... .1174c
Pulp & Paper Trading Co. ..... .1182c
* Walker, Goulard Plehn Co. ..... .1149c
R. P. Andrews Paper Co. ..... .131c
Wilcox Walter Furlong Paper Co. .1282c
Stanford Paper Co. ..... .1275c
Whitaker Paper Co. ..... .124c

*No. 205*—80,000 lbs., 20x26—100; blue, buff, dawn, quaker drab, terracotta, grey, brown, green, gobelin blue, granite, tea, and yellow; flat, cut 25¼x39 inches. Min. order, one color, 10,000 lbs.
* Marquette Paper Co. ..... .1174c
R. P. Andrews Paper Co. ..... .1225c
Stanford Paper Co. ..... .135c
Whitaker Paper Co. ..... .124c

### 50% Laid Cover, Colored

*No. 206*—25,000 lbs., blue, cream, white, gray, and green; 20x26—130; flat, cut 25¼x39 and 28x41 inches. Min. order, one color, 2,000 lbs.
* Paper Corp. of U. S. ..... .1814c
Cauthorne Paper Co. ..... .1846c
R. P. Andrews Paper Co. ..... .1818c

### Wood Manila

*No. 210*—80,000 lbs., 24x36—80; rolls, 24 ins. wide (3-inch fiber cores).
Walker, Goulard Plehn Co. ..... .0794c
Barton, Duer & Koch Paper Co. .. .083c
* Stanford Paper Co. ..... .075c
Frank Parsons Paper Co. ..... .0808c
Whitaker Paper Co. ..... .0815c

### Chemical Wood Manila

*No. 213*—10,000 lbs., 24x36—140; flat, cut 32x42 ins. Min. order, 10,000 lbs.

### No. 2 Kraft

*No. 218*—20,000 lbs., 24x36—80; flat, cut any size in wrapped bundles.

*No. 218*—20,000 lbs., 24x36—140; flat, cut any size, in wrapped bundles.
Arlington Sales Agency, No. 80.. .0875c
Arlington Sales Agency, No. 40.. .0875c
* Cauthorne Paper Co., No. 80 .... .0773c
* Cauthorne Paper Co., No. 40 .... .0773c

### White Gummed

*No. 252*—150,000 sheets, (ungummed), No. 40; flat, cut 22x34 ins. Min. order, 25,000 sheets.
Butler Co. per M sheets ..... $23.52
Paper Corp. of U. S. per M sheets ..... 23.52
* Bulkley Dunton, Inc. per M sheets ..... 22.36
R. P. Andrews Paper Co. per M sheets ..... 22.74

Stanford Paper Co.
per M sheets ..... 23.67
Mudge Paper
per M sheets ..... 24.59
Whitaker Paper Co.
per M sheets ..... 24.40

**High-Finish Chemical Wood Manila Tag**

*No. 271*—80,000 lbs., 24x26—280; flat, cut any size, min. width 24 ins., max. width 38 ins.
Pulp & Paper Trading Co. ..... .1093c
Paper Corp. of U. S. ..... .1025c
Walker, Goulard Plehn Co. ..... .1073c
* R. P. Andrews Paper Co. ..... .0975c

**Jute Tag**

*No. 280*—20,000 lbs., 22½x28½—200; flat, cut 34x44 ins., min. order 10,000 lbs.
Paper Corp. of U. S. ..... .1703c
Walker Goulard Plehn Co. ..... .1699c
* R. P. Andrews Paper Co. ..... .167c

**White Litho-Coated One-Side Cardboard**

*No. 300*—15,000 sheets, flat, size 34x57 ins. Min. order, 10,000 sheets.
* Paper Corp. of U. S.
per M sheets .....$107.76
Walker Goulard Plehn Co.
per M sheets ..... 111.15
Barton, Duer & Koch Paper Co.
per M sheets ..... 114.25
Stanford Paper Co.
per M sheets ..... 114.25

**Railroad Board, White and Colored**

*No. 301*—10,000 lbs., white, flat, 22x34; 4-ply, each 100 sheets fully banded. Min. order 10,000 sheets.
* Paper Corp. of U. S.
per M sheets .....$ 55.49
*No. 302*—5,000 lbs., white, flat, 22x34; 8-ply, each 100 sheets fully banded. Min. order 5,000 sheets.
*No. 303*—5,000 lbs., white, flat, 22x34; 14-ply, each 50 sheets fully banded. Min. order 5,000 sheets.
*No. 304*—20,000 lbs., ash gray, green, orange, and red. Flat, 22x34; 4-ply, each 100 sheets fully banded. Min. order, one color, 5,000 sheets.
*No. 305*—5,000 lbs., buff, flat, 22x28 ins., 14-ply, each 50 sheets fully banded. Min. order, 5,000 sheets.

**Wood Cardboard, Colored**

*No. 306*—200,000 lbs., buff; 22½x28½—150; rolls, 20 ins. wide (3-inch fiber cores).
Walker, Goulard Plehn Co. ..... .1847c
Barton, Duer & Koch Paper Co.. .1835c
* Frank Parsons Paper Co. ..... .1823c
*No. 307*—50,000 lbs., buff, 22½x28½—150; flat, cut 32x42 ins.
Pulp & Paper Trading Co. ..... .0898c
Walker, Goulard Plehn Co. ..... .0955c
* Barton, Duer & Koch Paper Co. . .0885c
Frank Parsons Paper Co. . ... .0969c
*No. 309*—80,000 lbs., blue, buff, green, melon, pink, and yellow; 22½x28½—184. Rolls, 20 ins. wide (3-inch fiber cores).
* Walker, Goulard Plehn Co. ..... .0873c
Barton, Duer & Koch Paper Co.. .091c

**Chemical Wood Tan Board**

*No. 310*—50,000 lbs., 22½x28½—200; flat, cut 25x38, 28x38, and 34x44 inches.
Pulp & Paper Trading Co. ..... .1249c
Paper Corp. of U. S. ..... .1313c
* Walker, Goulard Plehn Co. ..... .1244c
R. P. Andrews Paper Co. ..... .1295c

**United States Postal Card Paper**

*No. 325*—6,000,000 lbs., 22½x28½—188; rolls, 33 ins. wide, 36 ins., in diameter (6-inch iron or metal capped returnable fiber cores).
Mead Sales Co. (900,000 lbs. only) .0962c
* Walker, Goulard Plehn Co.
(1600 M) ..... .0833c
* R. P. Andrews Paper Co.
(2400 M only) ..... .0823c
* Whitaker Paper Co., #80
(2000 M only) ..... .0825c
Whitaker Paper Co., #80..... .0843c
Whitaker Paper Co., #80..... .0859c

## UNION BAG SALES STAFF PROMOTIONS

**A number of promotions and additions to the sales organizations of the Union Bag & Paper Corp., New York City, are reported by Leonard J. Doyle, vice-president in charge of sales. . . . Pictured above are: (1) S. K. Bradley, former director of chain store sales, now Eastern district manager of multiwall sales. He is succeeded by E. M. Rickel (2), former assistant director of flexible packaging sales. . . . R. B. Bennett (3), has been promoted to a new post, district manager of flexible packaging sales. He will direct the department's field representatives. . . . R. C. Shannon (4), becomes assistant to the director of flexible packaging sales. With J. P. Duffy, director of specialty bag sales, he will assume Mr. Rickel's former responsibilities of coordinating the activities of various sections of specialty sales. . . . W. F. Jacobi (5), has been named head of marketing research and development of flexible packaging sales, a new assignment which will consolidate development of new types of bags or new markets . . . J. P. Schwede (6), formerly with Standard Oil of New Jersey, has joined the sales staff as assistant director of export sales. . . . Charles Bond (7) and Ryan Loftus (8), both formerly with the Royal Bag Co. in New England, have been added to the field sales staff, and will cover New England, except Maine.**

*No. 327*—50,000 lbs., 22½x28½—188; rolls, 22 ins. wide, 36 ins. diameter (6-inch iron or metal capped returnable fiber cores).
Mead Sales Co. ..... .0962c
Walker, Goulard Plehn Co. ..... .0839c
* Whitaker Paper Co. ..... .0825c

**Pressboard, Colored**

*No. 352*—10,000 lbs., gray, flat, cut 30x36 ins., thickness .0300 inch. Min. order, 5,000 sheets.
R. P. Andrews Paper Co.
per C sheets .....$34.44
* Barton, Duer & Koch Paper Co.
per C sheets ..... 25.58
Whitaker Paper Co.
per C sheets ..... 35.51

**Newsboard**

*No. 360*—150,000 lbs., 26x38; No. 100; flat, cut any size, min. 21x32 ins., max. 40x52½ ins. (To be trimmed square on four sides).
Resolute Paper Products Corp. .. .0375c
Old Dominion Paper Co. ..... .036779c
Paper Corp. of U. S. ..... .037c
Walker, Goulard Plehn Co. ..... .0347c
* R. P. Andrews Paper Co. ..... .03449c
Stanford Paper Co. ..... .0366c
Whitaker Paper Co. ..... .03595c

**Binder's Board, No. 1 Quality**

*No. 366*—50,000 lbs., No. 1, 25¼x30¼ ins., Nos. 16, 18, 20, 25, 30, and 40; flat, to trim 25x30 ins.
Barton, Duer & Koch Paper Co.
#16 to 30, incl. ..... .08c
Barton, Duer & Koch Paper Co.
#40 ..... .085c
* Whitaker Paper Co. ..... .0593c
*No. 367*—20,000 lbs., No. 1 quality, 25¾x30¼; Nos. 12 and 20, flat; to trim 34x44 ins.

**Chestnut Cover Board**

*No. 369*—50,000 lbs., 25¼x30¼; flat, to trim 25x30 inches, Nos. 17, 19, 21, 25, 31, and 41.
* Mead Board Sales, Inc., #41 only .0615c
* Mead Board Sales, Inc.
# 17, 19, 21, 25 and 31 ..... .05775c
*No. 370*—80,000 lbs., 25¼x30¼; Nos. 16, 19, 24, and 31. Flat, to trim 25¼x37¼ ins.
* Mead Board Sales, Inc. ..... .05775c

## Worthy Under Hammer

WEST SPRINGFIELD, Mass.—The land, buildings, watermarks, name, goodwill, customer list, machinery, equipment and inventory of the Worthy Paper Co. Ass'n., at Agawam, will be auctioned on April 5, an advertisement of Aaron Krock & Co., Worcester, Mass, auctioneer, states.

## Government Moves In

FORT WILLIAM, Ont.—The Kaministqua Power Co., with a peak generating capacity of 36,060 hp., has been sold by the Abitibi Power & Paper Co. to the Ontario Hydro Commission for five million dollars.

## Chesapeake Mill Resumes

WEST POINT, Va.—The Chesapeake Corp. of Virginia mill resumed full production operations March 9 after a 10-day shutdown for repairs and installation of new equipment.

AA-102

**IMPORTANT NOTICE**

**TO ALL OWNERS AND OPERATORS OF *Camachine* MILL TYPE WINDERS**

## PNEUMATIC PRESSURE CONTROL

## *a Spectacular Improvement*

## IN CUTTER WHEEL PERFORMANCE

***is now available for application to all existing mill type Camachines, both standard and narrow width. This cutter unit has also been adopted as standard on all new Camachine mill type winders (models 14, 18, 19 and 20).***

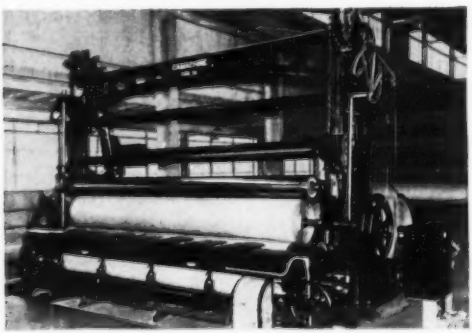
**HERE'S WHAT IT DOES:** With the new Camachine Pneumatic Cutter Units, uniform pressure is maintained on the complete set of cutter wheels, regardless of how many units are operated at the same time, and regardless of variations in the diameters of the cutter wheels. Also, the pressure is set and controlled at one point for the entire line, eliminating the need for individual adjustment of each cutter unit.

Pneumatic pressure control eliminates the danger of applying excess pressure on the individual unit—a fault which, on old-style spring-loaded cutters, often resulted in excess wear on the cutter wheels and costly downtime due to spring breakages.

Pressure on the entire line is controlled through a hand-operated valve. Changes of pressure to accommodate different thicknesses of paper or paperboard can be made instantly through a simple turn of the valve. In the event of a web break the cutter wheel pressure is released at once.

The Camachine Pneumatic Cutter Unit is one of several important post-war improvements which are offered as standard equipment on all new mill type Camachines. The extensive engineering, research and manufacturing facilities of the Cameron Machine Company are devoted exclusively to producing the world's most efficient slitting and roll-winding equipment.

BELOW: Camachine 20. Speeds up to 5000 fpm on newsprint.



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# Curlated Pulp—A New Approach to Pulp Processing[1]

By H. S. HILL, J. EDWARDS and L. R. BEATH
Price Brothers & Co., Ltd., Quebec, P. Q., Canada

**Abstract**

*A permanent change in the shape of pulp fibres is obtained by causing nodules of high consistency pulp to roll in changing directions between two surfaces which compress the nodules while they roll. The change in shape is towards more bends, kinks and twists and a more tubular cross section. The manipulation also exerts a powerful de-shiving action.*

*The process causes a change in all pulp properties and, while there are many degrees and variations, the effect in general is towards a softer pulp and thus is somewhat opposite from the effect of beating. Freeness tends to rise. In appearance, sheets of the treated pulp take on a more even-textured, matte look. The process effect is in evidence applied at any degree of beating, and to some extent persists through subsequent beating. The process effect resembles that of drying in regard to strength properties but differs for stretch, drying tending to lower stretch and the process to increase it strongly. The process widens the range of quality obtainable from a given pulp, and also permits entirely new combinations of pulp properties, thus indicating a wide variety of possible applications. Among other things, it may permit a higher pulp yield for many conversions.*

Figure 1. Conventionalized pulp nodule.

A word of explanation is in order about the name, "Curlated Pulp". It is a coined term derived from the name "Curled Pulp," which had been applied to the product during the early development period as a sort of nickname suggestive of one of the dominant characteristics of the treated pulp, namely, a permanent change in the shape of the individual fibres towards more bends, kinks, and twists. As the development work on the new process has progressed, it has become apparent that there are factors and relationships involved which go well beyond considerations merely of fibre shape, yet in the obvious need for a convenient, descriptive term, the name, Curlated Pulp, serves perhaps as well as any. It will be used generally in the following discussion to designate pulp which has been treated according to the new process in question, in turn called "Curlation"*.

Literature references to the effect of fibre configuration on pulp and paper properties are few and indefinite, and there seems to have been little recognition of any particular significance to be attached to this factor, and no attempts made to isolate the effect and study its relationships. No processes have been brought out for changing the shape of papermaking fibres as an end in itself. In the case of certain textile fibres and the coarser hairlike materials used for upholstery, the art of curling and kinking by various chemical and mechanical means is old and well developed. Highly advanced also, and indeed widely practiced, is the art of curling and waving human hair. When one considers the matter, it seems hard to account for the neglect of this field of technology for fibres used in papermaking.

It is true that some of the usual pulp processing steps cause changes in fibre configuration incidental to the main effect of the operation. Thus, such steps as blowing pulp from the digester, beating or other conventional refining of the pulp, bleaching at high density, de-watering to high density in a screw press, and pulp drying, all produce varying degrees of deformation of the original straight shape of the fibres. In all these cases, however, the change in configuration has been either too small to receive special recognition or has been masked by other more positive effects of the operation in question.

The present paper describes a mechanical process for imparting permanent bends, kinks, and twists to pulp fibres; it lists some of the many changes which the process can bring about in pulp and paper properties, and indicates general fields of usefulness for the process and for the product, "Curlated Pulp."

The process, in essence, is extremely simple. Nodules of high consistency pulp are caused to roll in continuously changing directions between two surfaces which compress the nodules while they roll. All the essential requirements of the process may be accomplished on small scale by rolling a nodule of pulp with a circular action between the thumb and finger and continuing the action for a small part of a minute. Similarly, on a

* The name "Curlator" is used as a trade-mark by the Curlator Corp. of Rochester, N. Y., to designate a commercial machine developed by James T. Coghill for carrying out the process described in the present paper. Patents covering the process and machine have been granted and/or are pending in Canada, the United States, and foreign countries.

Paper presented at the annual meeting of the Technical Section of the Canadian Pulp and Paper Association, Montreal, Que., January 26-28, 1949.
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[1] Convention Issue, *Pulp & Paper Magazine of Canada.*

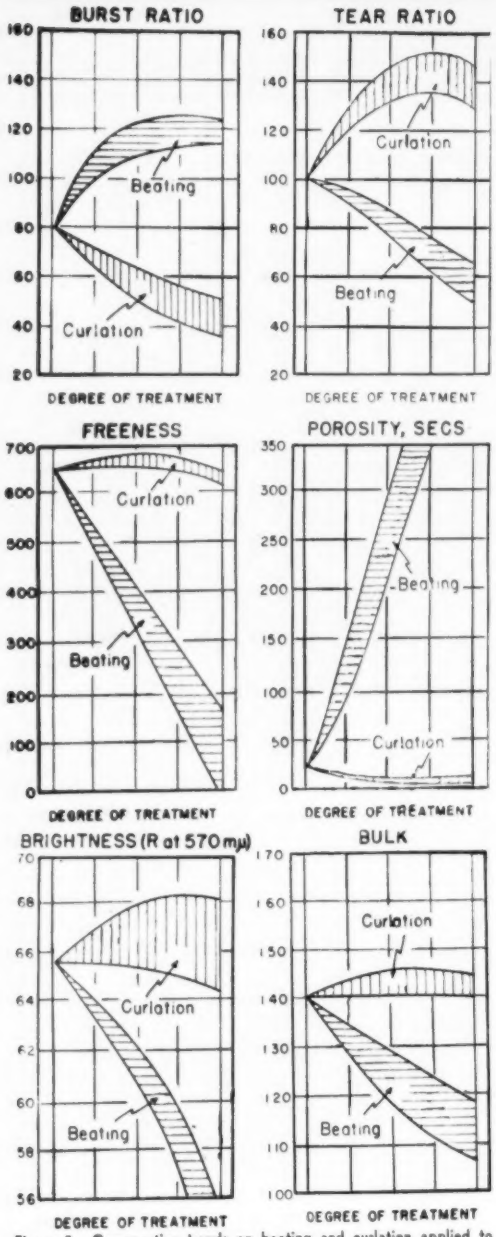


Figure 2. Comparative trends on beating and curlation applied to slush sulphite pulp.

somewhat larger scale the process may be carried out by squeezing a handful of slush pulp to a consistency of 15-25%, placing the lump of de-watered pulp on a suitable tractive type of surface such as a piece of coarse canvas spread on a table, then breaking down the lump into crumbs or nodules under pressure by the flat of the hand using a gyratory type of motion, and continuing the same action on the nodules for a minute or so with regrouping under the hand as necessary. Under this treatment the nodules roll in changing direction while under compression, in the same manner as the single nodule behaves between the thumb and finger. A block having a suitable tractive surface may be substituted for the hand, and, of course, various mechanical means may be arranged to perform the required manipulation.

One of the fundamental requirements of the process is that the nodules traverse the contacting surfaces in rollwise fashion, that is to say, without slipping or smearing on the surface and without developing slip planes within the pulp itself. Another requirement is that the nodules are caused to roll in changing directions, although this change in direction may take place either continuously, as caused by gyratory motion of the working surfaces, or intermittently as accomplished by short, repeated, straight line action of the surfaces with regrouping and reorientation of the nodules between successive movements. A still further requirement is that the nodules be compressed while they roll. These requirements impose certain definite limitations on conditions which may be employed in carrying out the process. The surfaces must possess the kind of roughness to provide good traction for the rolling nodules but without entanglement of fibres or otherwise impeding the rollwise traverse of the pulp over the surfaces. The relative movement of the surfaces must be slow, usually below 250 f.p.m. If a certain critical speed is exceeded, traction is lost and the pulp smears and builds up on the surfaces. Similarly, too heavy a compression will cause excessive flattening of the nodules and consequent breakdown of the necessary rollwise traverse. Operating pressures are usually under 15 lb./sq. in. of the surfaces contacting the pulp. Speed and pressure are interdependent in this regard, the lower the speed the higher the permissible pressure, and visa versa. The breakdown point between rolling and smearing is abrupt. It varies widely between different classes of pulp and between individual pulps of the same class. It is quite strongly affected by temperature, pH, and by certain additive ingredients. It has been found convenient to rate this property by what has been termed the "curlation number," which is the operating pressure in pounds per square inch at which a standard sample of pulp breaks down from rolling to smearing when gyrated between standard surfaces at a standard speed. The word standard here is used in the sense of a fixed condition arbitrarily chosen as suitable for the purpose. It is beyond the scope of this paper to go into the many relationships as brought out by this test, but it may be noted in passing that the new approach appears to open up an interesting field of study on certain characteristics of fibre surface and on how these correlate with factors of pulping, on the one hand, and with properties of finished paper, on the other.

Within the curlation limit, variation in degree of treatment can be obtained by control of the operating pressure on the pulp, the speed of movement of the contacting surfaces, and the duration of the action, in short, by the input of power. The power requirements of the process are unusually low. About one horse power per daily ton is sufficient for some applications, and the general range is from one half to several horsepower

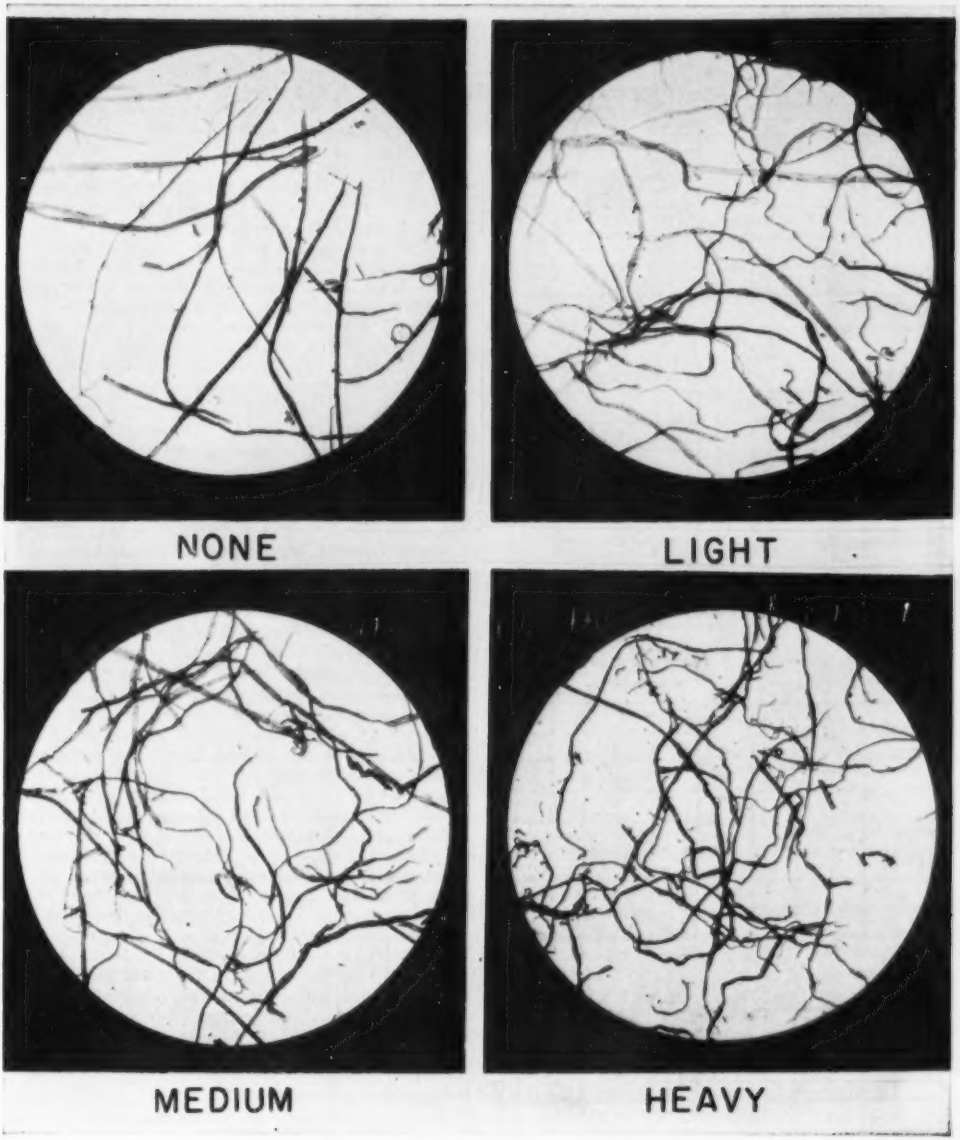


**Figure 3. Photomicrographs showing changes in fibre shape resulting from progressive degrees of curlation.**

per daily ton. Consistency of the pulp has some effect on the result although, obviously, the local consistency of the nodules under direct action will depend more on the operating pressure than on any lower starting consistency. The usual range of consistency in carrying out the process is 15 to 25%. In preparing the high-consistency nodulated stock for the process, best efficiency is obtained by providing some agitation of the pulp during intermediate de-watering stages. This induces extreme flocculation and sets up the necessary cleavage zones to give easy formation of nodules in the de-watered pulp.

For an understanding of the process it is of interest to consider what happens to the individual fibres under the action as described. Fig. 1 shows a conventionalized sketch of a single pulp nodule with its fibres intertwined in essentially random orientation. It will be apparent that when such a lattice structure is com-

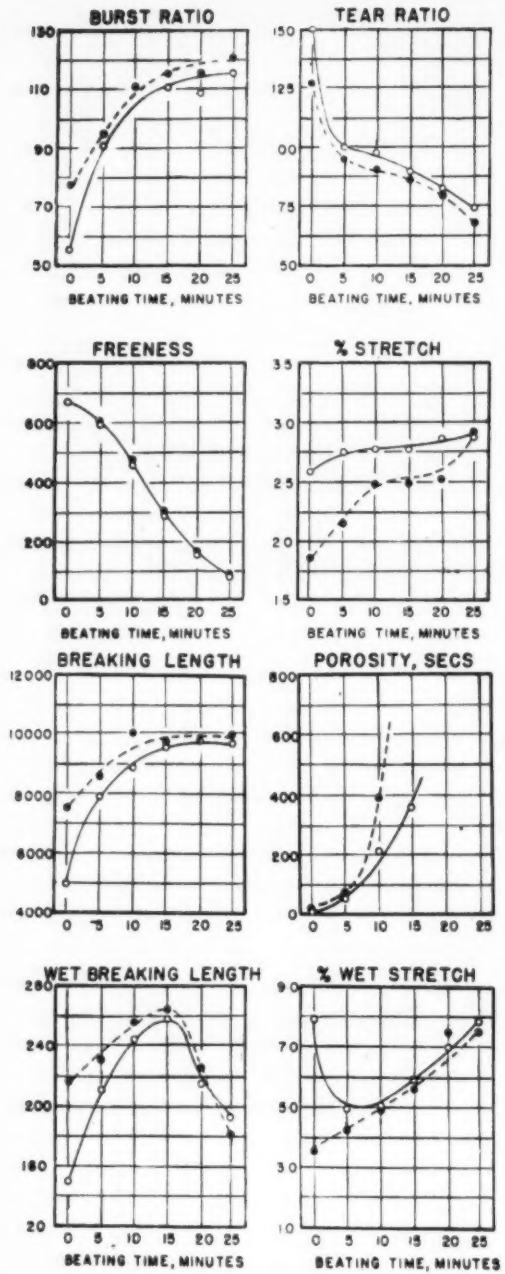


Figure 4. Comparison of the effects of beating on curlated and on untreated slush sulphite pulp. O—curlated. ●—untreated.

pressed, the individual fibres are subjected to numerous short-radius bends over and about one another; then, as the nodule is forced to roll under compression, these bending actions become very numerous and occur in continually changing directions, the more so if the direction of rolling is also changing. It thus requires only a short time, or put another way, a short path of rolling traverse, before all the fibres have received intense short-radius flexing in many directions, and probably considerable twisting as well. Moreover, since cellulose and lignocellulouse fibres are somewhat plastic, particularly when wet, the bends, kinks, and twists imparted by the flexing action take on a more or less permanent set, depending on the severity of the treatment. A close analogy is, that when a moist sheet of paper or linen is well crumpled it will set in a strongly wrinkled condition which persists after drying, and a point to observe is that the change in configuration may be obtained without rupture or other physical breakdown of the sheet structure. So it is with pulp fibres.

There is another important effect of the curlation method. The intense flexing action within the rolling nodule causes any fibre bundles to separate into single fibres, and thus the treated pulps are remarkably free of shives. In the same way the method is very efficient in defibring screenings and high-yield pulps. Again, a simple analogy may serve in explaining the effect. Consider several pieces of flexible cord glued together on their long axis. It will be found that the easiest way to separate the cords, and the one least likely to damage them, is vigorous, short radius flexing of the bonded unit throughout its length. So it is with bonded fibres.

In taking up the subject of the effect of the curlation process on pulp and paper properties, it is perhaps necessary to offer a few general explanations. In the first place, it is an entirely new field, apparently a broad and interesting one but with landmarks and boundaries by no means fully charted. Secondly, there is no single, easily defined curlation effect; there are many degrees and modifications of the treatment, all of which may show up in different characteristic ways when applied to the widely divergent types of pulp used in modern papermaking. Thirdly, there are the complex relationships of the curlation effect with those of other pulp processing steps such as beating, bleaching, and drying. Finally there is the limitation of present space and time in relation to the great volume of experimental data which has already accumulated. Under these circumstances the purposes of this paper will be best served by an attempt to show the highlights of the subject and to present a few selected examples which appear to typify the curlation effect in some of the directions thus far explored.

As a first example of the process effect, Table I shows the change in pulp properties resulting from two increasing degrees of curlation, applied to slush, unbleached sulphite of newsprint grade.

The treatment is by hand, using a canvas covered block for rolling the pulp on a similar table surface. The indicated power input is estimated from correlation data with power driven equipment developed later. The treated pulp nodules are re-slushed directly after curlation by 100 turns in the Standard British sheet machine disintegrator. Pulp tests here, and elsewhere in the present paper, are by the Canadian Standard method.

It will be noted that freeness tends to increase on

curlation. A drop in burst and tensile is balanced by a sharp rise in tear. Stretch, both wet and dry, shows marked increase as does porosity (inverse of time reading shown). Stiffness tends to drop, and bulk, after an initial drop due to the elimination of shives, tends to rise.

Fig. 2 is an attempt to illustrate the distinctive nature of the curlation effect by presenting the trend relationships between curlation and conventional pulp refining as typified by beating, again with reference to slush, unbleached sulphite. The broad bands are merely indicative of the range of values which may be obtained under normal variation of the two kinds of treatment, and are not intended to define the limits of either. The curves represent the progressive change in the desig-

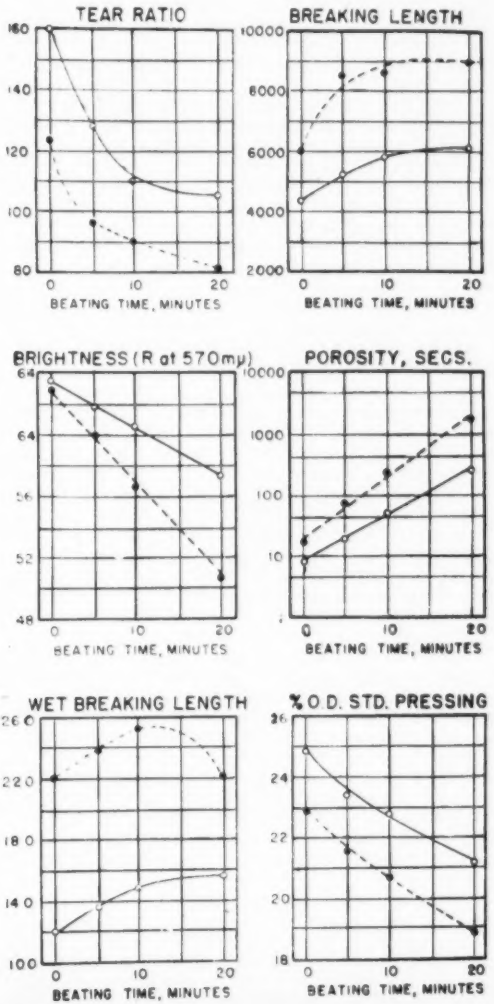


Figure 5a. Effects of curlation on slush sulphite pulp after various degrees of beating. O—beaten.—curlated. ●—beaten only.

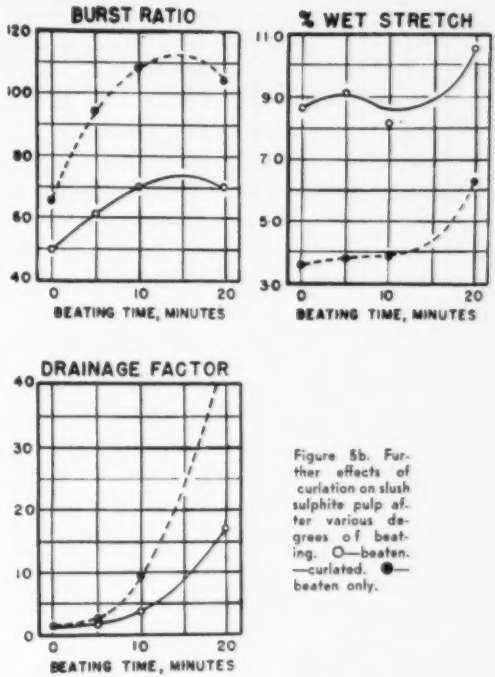


Figure 5b. Further effects of curlation on slush sulphite pulp after various degrees of beating. O—beaten. —curlated. ●—beaten only.

nated properties with increasing degrees of the two treatments, there being no direct basis, such as time or power of treatment, for comparison on a common scale.

It is apparent from the curves that the effects of curlation and beating present widely different characters; in fact, it is remarkable to what an extent the two effects are directly opposed. Both treatments, however, have shive reduction in common, although with curlation shives are eliminated very rapidly with low power consumption and without drop in freeness, whereas with beating shive reduction takes place gradually with high use of power and large drop in freeness. Small, bird-seed type of shives often persist throughout beating, but they cannot escape being defibred during curlation.

There is another prominent curlation effect which does not show in the foregoing classification, and that is the change in sheet appearance. Apart from the improvement in cleanliness from elimination of shives and soft dirt, sheets of curlated pulp take on a matte look, or put another way, the surface appears more optically level. There is a decrease in gloss and a corresponding increase in apparent brightness except for the view directly opposite incident illumination. This optical levelness of the surface seems still more pronounced in the case of coloured sheets, and curlation appears to give a deeper shade of colour with the same amount of dye. There is a slight tendency for opacity to increase with curlation. In regard to optical properties, therefore, the effect of curlation bears a general resemblance to that produced by a mineral loading material such as china clay, and again, shows opposite trends from those of beaten pulp.

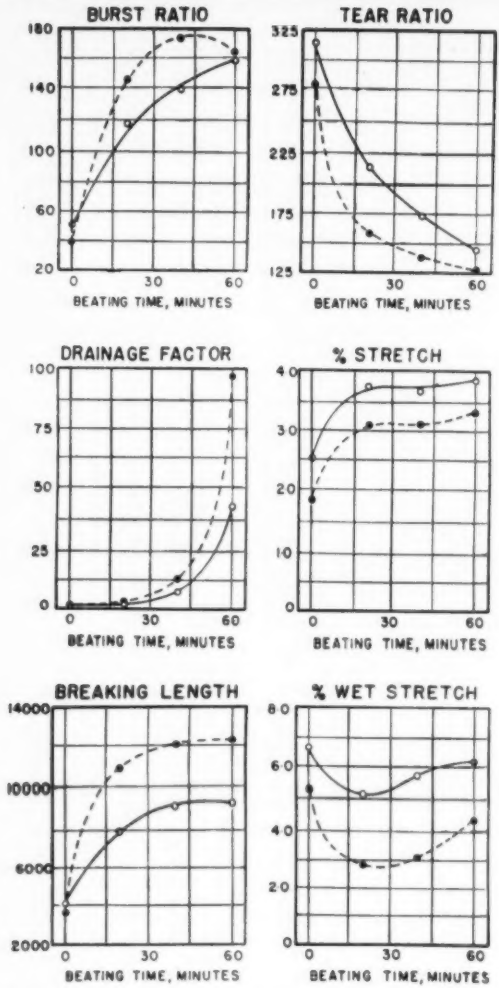


Figure 6. Effects of curlation on dried bleached kraft pulp after various degrees of beating. O—beaten and curlated. ●—beaten only.

Still another typical change brought about by curlation is that the wet pulp will de-water somewhat further under a given pressure, and will also lose water vapor more easily on drying. In terms of paper mill operation these changes indicate a somewhat drier sheet at the couch or wet press, and a lower steam pressure and less steam used for drying, presenting possibilities for economy and increased machine production.

The question of why curlated pulp exhibits these particular changes of quality opens up an interesting field of speculation. It would seem fairly obvious that an increase of bends, kinks and twists in the fibres will result in less area of bonded contacts throughout the sheet structure, and that this would in turn account for lower burst and tensile and higher tear. Sharply higher stretch values could be attributed to cumulative coil effect from the greater degree of fibre contortion. The increase in porosity would seem to be only partly explained by the decreased area of bonded contacts, and this brings up another peculiarity. It has been found that curlation produces a change in cross section shape of the fibre as well as that on the long axis. The usual somewhat ribbon-like flatness is changed towards a more tubular section. This reduces the projected width of the fibres, and in fact curlated fibres do look finer. As a consequence, a lattice structure of such fibres in a sheet of paper of a given weight has more space between fibres transversely to allow freer passage of fluids, such as air in the porosity test, oil in the absorbency test, water in drainage and wet pressing, and steam in drying. Change in fibre shape could also account for the change in optical properties. The greater degree of fibre contortion causes more scattering of reflected light so that there is less visual definition of separate fibres. The result is the typical matte appearance of curlated pulp and its greater brightness in most views. Some of the optical levelness may also result from the fact that with curlated pulp there seems to be a marked absence of fibres exposed in full unbroken view at the plane of the surface, as compared with whole fibres which are readily visible in the case of untreated pulp, particularly after the fibres may have become glazed by heavy calendering.

Fig. 3 shows photo-micrographs which have been prepared to illustrate the change in fibre configuration produced by curlation, the pulp again being slush, unbleached, newsprint sulphite. The four photo-micrographs represent untreated, light, medium, and heavy curlation. Apparent are the bends, kinks and twists which the treatment has imparted to the fibres, and also the trend towards reduced projected fibre width.

Some of the relationships between curlation and drying of pulp are set forth in Table II, the pulp being unbleached newsprint sulphite, and the curlation treatment rather light. Column 1 represents untreated slush pulp; column 2, a sample of the same pulp tested after hot cylinder drying; column 3, another sample tested after curlation and column 4, a sample tested after curlation and subsequent drying. Columns 5, 6, and 7 are a separate series to illustrate the effect of curlation following the drying step, that is, curlation applied to pulp reslushed after previous drying, the three columns representing the original slush pulp, the pulp after drying, and the dried pulp reslushed and curlated, in that order.

Points both of similarity and of difference show up for curlation and drying. Strength properties and porosity exhibit quite similar trends for the two treatments, but stretch shows an opposing trend. Drying gives more bulking effect than curlation. In appearance, drying gives little of the typical matte effect produced by curlation and, of course, drying accomplishes no de-shiving or cleaning. When both curlation and drying are applied, the typical effects of each treatment appear to be additive, but in more pronounced degree when curlation precedes drying.

The question of the effect of beating on curlated pulp is a very complex one, for there are many kinds of beating and curlation, and many kinds of pulp. A specific example may serve to indicate the kind of result that is obtained. Fig. 4, shows comparative beating effects on curlated and untreated samples of a slush newsprint sulphite. The curlation treatment is rather light, and the beating is done in standard manner in a

Valley laboratory beater.

The curves show that the more divergent of the initial properties of the curlated pulp tend to approach those of the untreated pulp during the course of beating. Certain other characteristic curlation properties, however, persist strongly throughout beating, as witness, dry stretch and porosity. On the whole, it would appear that much of the curlation effect is retained, although in some respects it is masked by the very positive beating effect. Rate of freeness drop, however, appears little affected by the curlation pre-treatment. With heavier curlation, the effect is more persistent throughout beating than shown in the present example.

In the different case of applying curlation after beating, very pronounced effects are obtained at all degrees of beating. Fig. 5 shows the pulp quality comparisons on samples taken after increasing time of beating, part of each sample being tested, as-is, and another part after curlation. Again the pulp is unbleached newsprint sulphite.

The curves show that curlation of beaten pulps produces the same trend of property changes that is given at the unbeaten stage, but that in some respects the effect is accentuated. Noteworthy is the change in the drainage properties from curlation of the more heavily beaten samples. It is indeed surprising to find the sharply increased rate of drainage resulting from a simple, mechanical manipulation of the pulp.

Fig. 6 illustrates a similar series run on an entirely different class of pulp, a high-grade, bleached sulphate, previously dried.

The results on the unbeaten sample are of interest since apparently the extreme properties of the untreated sulphate pulp influence the extent of the curlation effect. Thus, tearing strength is already near its possible maximum and therefore curlation cannot cause the sharp increase which in many cases is typical of the process. Similarly, bonding of the fibres is already so low that curlation cannot cause its usual decrease of burst and tensile strength. The increase in stretch, however, shows that the effect of curlation on fibre configuration is still present, and this may be verified under the microscope. As beating of this pulp progresses, curlation again asserts its typical effects on all properties, including a sharp increase in the rate of drainage imparted to heavily beaten pulp.

Soda pulp furnishes another example of extreme initial properties influencing the results obtained by

**Table I.—Typical Curlation Effects on Slush, Unbleached Sulphite**

| | Untreated | Medium Curlation about 1 hp/da. ton | Heavy Curlation about 3 hp/da. ton |
|---|---|---|---|
| Burst ratio | 67 | 50 | 37 |
| Tear ratio | 140 | 164 | 198 |
| Breaking length | 7200 | 4800 | 3610 |
| Percent stretch | 1.8 | 2.4 | 2.7 |
| Bulk, cc. per m. | 1.376 | 1.373 | 1.400 |
| Stiffness, (Gurley) mg. | 111 | 88 | 70 |
| Porosity, sec. | 19 | 12 | 9 |
| Freeness | 689 | 698 | 670 |
| Drainage time, sec. | 4.0 | 3.8 | 4.4 |
| Wet burst ratio | 0.790 | 0.760 | 0.675 |
| Wet bursting length | 205 | 146 | 110 |
| Wet stretch, % | 3.8 | 8.0 | 11.0 |
| % h.d. after std. wet press | 24.0 | 25.2 | 26.6 |

curlation. Here the very low initial burst tends to increase, and bulk to decrease slightly. Stretch and tear, however, show typical curlation increase and the usual improvement in optical levelness is also in evidence.

As might be expected, groundwood is more resistant to influence by curlation than are the chemical pulps. The application of ½ h.p. da./ton, as in most of the foregoing examples, produces, little apparent effect on groundwood. If the power is stepped up to, say, 5-10 h.p. da./ton, however, groundwood shows a readily perceptible change. Table III, columns 1 and 2, gives the result obtained by curlation of newsprint groundwood, using about 8 h.p./da. ton applied on laboratory scale by a power-driven gyrating plate. The simple hand demonstration of the process which serves for chemical pulps does not lend itself to such applications requiring considerably higher input of power. Furthermore, with the more resistant materials, the effect of added power obtained by prolonged hand treatment is not the equivalent of that obtained by a higher intensity of treatment. The table shows the typical curlation effect on all properties except tear and freeness, both of which are somewhat reduced. It seems strange to find increased porosity with decreased freeness. The curlated groundwood has the expected more even texture and appearance, and the change in this direction appears greater than that which might be obtained by the same extra power added at the grinder. In another test, using a coarser, weaker groundwood, curlation with 5 h.p. da.

**Table II—Relationships Between Curlation and Drying Unbleached Newsprint Sulphite**

| | 1 Slush | 2 Dried | 3 Curlated | 4 Curlated & Dried | 5 Slush | 6 Dried | 7 Dried & Curlated |
|---|---|---|---|---|---|---|---|
| Burst ratio | 77 | 38.2 | 55 | 28.3 | 87 | 66 | 57 |
| Tear ratio | 127 | 140 | 150 | 156 | 116 | 144 | 176 |
| Breaking length | 7480 | 4000 | 4940 | 2860 | 8100 | 6120 | 4610 |
| % stretch | 1.86 | 1.68 | 2.61 | 1.68 | 1.65 | 1.17 | 1.70 |
| Bulk, cc. per g. | 1.372 | 1.569 | 1.374 | 1.601 | 1.399 | 1.496 | 1.438 |
| Porosity (Gurley) sec. | 21 | 9 | 12 | 5 | | | |
| Freeness, Can. Std. | 666 | 669 | 661 | 681 | 672 | 603 | 652 |
| Drainage time, sec. | 39 | 4.5 | 3.9 | 4.0 | —— | —— | —— |
| Wet burst ratio | 0.828 | 0.796 | 0.795 | 0.728 | —— | —— | —— |
| Wet breaking length | 217 | 192 | 149 | 141 | —— | —— | —— |
| Wet % stretch | 3.5 | 4.2 | 7.9 | 6.8 | —— | —— | —— |
| % h.d. after std. pressing | 22.4 | 28.4 | 23.4 | 30.2 | —— | —— | —— |

per ton, gave a 50% increase in burst, a slight rise in tear, and again a more even texture.

Table III also shows the effect of the curlation technique applied to groundwood screenings, using a power input of about 40 h.p. da./ton, which for curlation must be considered very extreme. There is, in fact, little present indication how the process might be applied in this high power range commercially, but the experimental results are included here as a matter of some fundamental interest. As far as is known, this is the first demonstration of a very superior groundwood pulp obtained from groundwood screenings. Considered at equal freeness it is perhaps the highest quality of groundwood yet obtained by any means. The exceptional test values may yet be judged by comparison with those of the newsprint groundwood of column 2. In texture and appearance also, the special sheet compared favourably with regular newsprint groundwood.

Screenings from the usual types of chemical pulps are well defibered by curlation with moderate application of power, and with high freeness maintained in the resulting pulps. Broke and waste paper also yield readily to the action, and clear pulps are obtained from even the most resistant papers, without the use of chemicals or boiling out treatments.

During the course of the development the natural question arose as to what happens to the properties of a pulp when it receives an extreme degree of curlation. Clearly, pulp fibres cannot withstand the intense flexing action of the process indefinitely without some form of breakdown. Table 3 includes a comparison showing the effect on an unbleached sulphite of an extreme curlation treatment, applying about 50 h.p. da./ton by a power driven, gyrating plate. Again, the results are presented for their fundamental rather than immediate practical interest. The treated pulp, column 6, exhibits some noteworthy new trends. The great drop in freeness shows that the fibres have finally undergone rather drastic disintegration. Yet at the low freeness, tear has gone up to a high value, and burst and stiffness have fallen. Sheet porosity is still very high for such a large drop in freeness. Perhaps most remarkable of all, printing opacity has risen and brightness is unimpaired. The change in appearance is equally striking. The rather sleazy look of the initial unbleached sulphite sheet has changed to the level, somewhat chalky appearance of heavily loaded book paper. Altogether the treated pulp presents a unique combination of properties, one which seems to offer much food for thought in the field of pulp and paper technology.

There is quite a different kind of extreme curlation effect obtained in quite a different way. It is found that increasing the holding time between curlation and the subsequent reslushing of the curlated nodules gives a more pronounced degree of the typical process effect. Holding the nodules one hour produces a noticeable increase, and longer periods strengthen the effect still further. This kind of change is accentuated by holding the curlated nodules under pressure, or by heating them, or in still greater degree by partial or complete drying of the nodules. The obvious explanation would seem to apply for all these after-treatments, namely, that in the curlated nodule the tightly intertwined fibres are still held under light deformation forces, and these forces continue to exert their influence for some time. Pressing, heating, and drying increase these forces or render the fibres more susceptible to them. The net result is an increased set of the bends, kinks, and twists of the fibres. This explanation is supported by the fact that with tighter, higher-consistency nodules the effect of the after-treatments is accentuated. By selecting certain combinations of after-treatments, extreme changes in pulp properties have been obtained. Sheets of great softness have been prepared from hard newsprint sulphite. Burst has been reduced to near the vanishing point. Tear values of newsprint grade sulphite have been raised as high as 275. It may be added, however, that in progressing towards greater softness by decreased fibre bonding, tear rises to a maximum and then declines, so that with sheets of extreme, low burst, tear may have passed the peak and reverted to near its initial value. Thus a final combination of a 10 burst ratio and a 120 tear ratio is possible for treated newsprint sulphite. Clearly, extreme curlation effects of this nature are not accompanied by any disintegration of fibre structure as occurs with the other class of extreme effects produced by extra-high input of curlation energy.

Referring again to the process itself, there are several additional points which may be of interest in rounding out the present preliminary account. Temperature has quite an effect. Both on the curlation operation and on the resulting changes in pulp properties. Higher temperature increases the ability of a pulp to absorb curlation power without smearing and consequent

**Table III—Miscellaneous Curlation Applications**

| | Newsprint Groundwood | | Groundwood Screenings | | Unbleached Sulphite | |
|---|---|---|---|---|---|---|
| | 1 | 2 Curlated | 3 | 4 Curlated | 5 | 6 Curlated extreme |
| | Untreated | 8 hp/da. ton | Untreated | 40 hp/da. ton | Untreated | 50 hp/da. ton |
| Burst ratio | 21.2 | 19.1 | 12.3 | 38.5 | 89.3 | 60.0 |
| Tear ratio | 62 | 55 | 43 | 85 | 130 | 146 |
| Breaking length | 2,230 | 2,060 | 1,255 | 3,530 | 7,560 | 4,160 |
| % stretch | 1.44 | 1.51 | 0.81 | 1.96 | 1.71 | 3.60 |
| Bulk, cc. per gm. | 2.322 | 2.277 | 3.418 | 2.000 | 1.361 | 1.299 |
| Porosity (Gurley) sec. | 22 | 19 | 0.5 | 48 | 15 | 51 |
| Stiffness (Gurley) mg. | 91 | 83 | 122 | 87 | 121 | 51 |
| Brightness Rᴏ (570) mu. | —— | —— | —— | —— | 62.1 | 62.1 |
| Printing opacity | —— | —— | —— | —— | 87.4 | 90.6 |
| Freeness | 94 | 51 | 641 | 108 | 691 | 72 |
| Drainage time, sec. | 15.6 | 16.1 | 4 | 18.3 | 4.5 | 24 |
| Wet strength ratio | 0.279 | 0.177 | 0.184 | 0.277 | 0.840 | 0.640 |
| Wet breaking length | 48 | 27 | 47 | 59 | 235 | 115 |
| Wet stretch, % | 9.1 | 12.3 | 3.7 | 5.5 | 3.0 | 8.3 |

checking of the action, and this has considerable practical significance in the problem of obtaining high capacity from commercial equipment. At the high consistency of curlation, possible raising of temperature is only a minor economic factor. The effect of temperature on the property changes from curlation varies somewhat with the nature of the pulp, but in general a higher temperature works toward a softer curlated pulp, that is, one with lower burst and stiffness, and higher tear, bulk and freeness. Thus temperature tends to accentuate the typical curlation effect.

Pulp consistency similarly has an influence on the effect of the process, although as noted earlier its influence in the lower consistency range may be tied in with curlation pressure. Furthermore, in practical application, consistency may not ordinarily be an independent variable. Taken by itself, however, higher consistency like higher temperature seems to work in the direction of an accentuated curlation effect, which is towards a heavier set of the altered shape of the fibres and all that this implies in terms of pulp and paper properties. On the other hand, the somewhat separate de-shiving effect of curlation seems to be more pronounced at the lower consistency, for example, under 15%.

As noted in the foregoing account, the stretch properties of pulp, both wet and dry, are increased by curlation. Wet stretch is particularly sensitive to the treatment, and gains of 300% are readily obtained on slush unbleached sulphite. Accordingly, wet stretch has proven a very useful guide throughout the course of the development work on the process, and it should continue to serve as a convenient aid in defining curlation degree. The test has also supplied added insight to some of the more fundamental relationships of pulp and paper quality. The test used is that developed at the Pulp and Paper Research Institute of Canada by Mr. W. S. Morris and Dr. R. de Montigny. (Pulp and Paper Mag. of Canada, Vol. 42, no. 7: 410 (June 1941).

It is not the purpose of this paper to deal with the commercial aspects of the curlation process, but a few general observations may be of interest. From the broad viewpoint, perhaps the most significant fact is that the process materially extends the existing range of pulp properties and combinations of properties. It appears to break down some of the hitherto limiting boundaries in the field. A given pulp can be changed further and in more directions than formerly, and a given raw material can serve for a wider range of pulp requirements. Considering the variety of specific requirements in the whole field of pulp conversions, this increase in flexibility should prove useful. The benefit might show up in the adaptability of raw material; it might appear in operating characteristics; and it might be a factor in quality of product. It might contribute to new applications, and even to new products.

The tendency of the process to give a softer pulp is of interest in such conversions as tissues, book papers, and folding box-board. The change in appearance and optical properties is of interest in nearly all conversions. The increase in stretch is an important strength factor in many uses, such as the running of a paper web in printing and other conversions, or the resistance of paper bags and cartons to rupture by impact. High wet stretch is of interest in wet molding and embossing. The increased porosity may have some interest in coating and impregnating operations. The extra kink of the fibre may have interest for felted pulp products. The somewhat greater stability of sheet surface and structure is of interest where scuffing, fuzzing and sheet curling are factors. The de-shiving influence of the process is of interest generally.

On the economic side, the most obvious and direct interest lies in the possibilities for higher pulp yield. There is a significant fact here. The tendency of higher yield pulps to be harder is opposed by the tendency of the present process towards a softer pulp, and consequently, when the process is applied at increasing yields, the net change in pulp properties is relatively narrow. There is, moreover, the great gain from the power de-shiving effect of the process. There would seem to be few conversions which would not allow at least some increase in pulp yield in this manner, but it will take trial and time to arrive at the practical limit in any specific application. The same applies to the more indirect economies which seem to be indicated for the process, such as those in raw material, furnish, and machine operation.

This leads to the reason why the words,: "New approach," appear in the title of this paper. It is not only that the work appears to follow a new direction of attack on the problem, but also because in the broader aspects, many of the indicated objectives have in fact only been approached. The present account charts the course of the approach, and tells what has appeared to view from the new position. The view presents points of interest, but it also shows up the distance yet to be covered. It is hoped that the present account may stimulate further progress.

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**Paper Trade Journal, in this section, makes space available for discussion of technical and operating problems. Space is also available for the presentation of independent studies and research on technical and engineering subjects. Feature stories of paper mills, converting plants and inter-related industries will be included. An invitation is cordially extended to all who are qualified to discuss these subjects. Original manuscripts submitted exclusively to Paper Trade Journal and found suitable for use in this section will be paid for immediately upon acceptance. Submit manuscripts to E. P. McGinn, Industrial Editor.**

# Trends

Office of the PAPER TRADE JOURNAL, Wednesday, March 16, 1949.

### Wood Pulp

While retaining their premise that lower prices will work additional hardships on the Finnish pulp industry, sales representatives here accept the necessity of adjusting second quarter prices to meet basic competitive levels. With the exception of Norwegian mills and some Swedish bleached sulphite, Scandinavian prices for the second quarter are about settled. Quotations reported under *Prices* are basic; other qualities priced upwards.

Following a meeting held some ten days ago, Canadian producers have affirmed their earlier decision to maintain second quarter prices at first quarter levels. Individual firm announcements due about the 15th or 16th had been expected to show some deviation from the collective decision, but none has been uncovered. So far as can be ascertained, Canadian prices are firm at first-quarter levels.

Scandinavian sales representatives infer some bookings have been made at the new prices, but concur in the *Journal's* information that no rush of buying has started.

### Newsprint

Judging from the number and variety of unrelated items issuing from here and there, the price of newsprint is drawing heavy consideration.

Under an item headed "Newsprint Should Be Priced Attractively Says Mill Head," the ANPA Bulletin of March 2 quotes address of Arthur A. Schmon, president, Ontario Paper Co., Thorold, Ont., a large newsprint producer: "Newsprint is like any other product. It must be priced at a level which will encourage people to use it. In short, we can expect world newsprint usage to grow only if we keep newsprint priced attractively. It is not our thought to stabilize costs and hold the price line by lowering the wages of our workers. Rather we seek the only sure method of reducing costs, that is to increase the efficiency of our machinery and workers so that each might produce more."

The *Journal's* Ottawa correspondent writes that trade circles have been watching closely price reactions in the spot newsprint market, because of trade reports to the effect that some Canadian newsprint has been showing up on U.S. spot markets. If correct, this is considered to be a new development, since almost all spot newsprint has been of European origin. The bulk of Canadian newsprint production is sold on a contract basis. However, it is being watched for possible indications of a diminishing demand in the making. Wholesale price of newsprint, Canadian mill, declined to $87.916 per ton in January against $88.60 in December, 1948, and $85.44 in January, 1948. Yearly average for 1947 had been $79.48, according to Prices Branch, Canadian Govt.

Reporting the visit of Mr. F. P. Bishop, general manager of the Newsprint Supply Co. (British), to the U.S. and Canada, a British journal states that Canadian newsprint mills collectively and separately "showed great interest in supplying the United Kingdom market, and had generously agreed to hold reservations for Britain still longer pending the Government's decision about the import quota for the second half of 1949. In the U.S., his (Mr. Bishop's) impression was that there would be some slackening of demand, but this was more likely to affect spot buying, and he did not think the Canadian mills would be affected. In general, prices in New York were falling."

### Writing Papers

Adjustment in rag content prices started some weeks ago seems to have wound up with resale prices on competitive levels. New quotations on *Prices* page are representative of the price range for 20-lb. bonds and ledgers. Differential between 16- and 20-lbs. was entirely removed by some mills, partially so by others, retained by still others. Mill spokesmen report the pickup noted in January as being sustained, and are supported in their contention by industry statistics. Dealers, however, indicate only a competitive shift in demand from one mill to another but no noticeable overall swell. Heavy inventories are still cause for concern, and are being merchandised out often at special prices. Business is reported at a good level but not of boom proportions. Merchants report limited purchases with an eye to their inventories and the price situation. Competition is sharp, they say, but top quality products have no substitutes.

### Business Yardstick

(1) *Unemployment.* Continued claims for unemployment insurance fell 2 percent during the week ended February 26, for the first decline in three months, D&B reports. Initial claims dipped 7 percent in the same week. Total claims are given as 68 percent over a year ago.

Results of a U.S. Government survey of unemployment which covered employers in 92 major labor market areas has just been released. It indicates that an upturn in employment is generally expected in 60 days, though not to record-breaking levels of 1948, according to Robert C. Goodwin, director of the U.S. Employment Service.

Reopening of Kaiser-Frazer's assembly lines at Willow Run on March 14, after a shut-down of three weeks, restored some 7,000 production employes to their jobs of turning out a new low-price line of cars.

Four of the five kraft board mills which closed temporarily for new installations, repairs and cutbacks, are back in production, including Chesapeake Corp. and Macon Kraft Co.

(2) *Dept. Store Sales.* Sales for the week ended March 5 show 9 percent decline for the nation, compared with 1948's week, the Federal Reserve Board reported. Figures for New York were 14 percent behind like week of 1948, but indicate that 1948's week was pre-Easter whereas Spring and Easter shipping is just commencing.

(3) *Freight Carloadings.* An increase of 17,424 cars of 2.5 percent was shown in loadings for the week ended March 5, compared with the previous week. This was 10.9 percent less than in 1948's week and 12.4 percent behind 1947's, the Ass'n. of American Railroads announced.

Forest products loadings for the same week were 36,933, an increase of 1,629 over the previous week but a dip of 5,967 from 1948's week.

(4) *Steel Ingot Production.* For the week ended March 11, ingot production reached a new weekly high, operating at 102 percent of rated capacity, compared with revised rate of 101 for the preceding week. Industry representatives look for the month to establish a new high record.

### *Monthly Business Statistics

| | Jan. 1949 | Dec. 1948 | Jan. 1948 |
|---|---|---|---|
| *Paper* (excluding building paper, newsprint and paperboard) | | | |
| New Orders ... | ‡684,700 | 716,171 | 790,785 |
| Production ..... | 720,500 | 720,715 | 780,080 |
| Shipments ..... | 706,500 | 717,139 | 773,546 |
| *Fine Paper* | | | |
| New Orders ... | 77,700 | 77,966 | 112,679 |
| Production ..... | 82,000 | 86,196 | 107,304 |
| Shipments ..... | 83,000 | 82,275 | 108,870 |
| *Printing Papers* | | | |
| New Orders ... | 236,500 | 250,963 | 274,710 |
| Production ..... | 252,000 | 253,493 | 269,194 |
| Shipments ... | 246,000 | 248,613 | 265,557 |
| *Coarse Papers* | | | |
| New Orders ... | 244,000 | 257,401 | 268,989 |
| Production ..... | 258,500 | 251,800 | 265,827 |
| Shipments ..... | 250,000 | 257,029 | 262,870 |

* Source, Survey of Current Business. ‡ Short Tons.

### Indexes

Index of general business activity for the week ended March 5 fell to 146.7 from 148.2 in the preceding week, compared with 151.7 in the corresponding week of 1948. Index of paperboard production dipped to 157.8 from 165.3 in the preceding week, compared with 192.5 in the corresponding week of 1948.

Comparative ratios of U.S. paper and paperboard production to mill capacity, as reported by AP&PA are:

| | Mar. 5 1949 | Feb. 26 1949 | Mar. 6 1948 | Mar. 7 1947 | Mar. 8 1946 |
|---|---|---|---|---|---|
| Paper** ..... | 89.5 | ‡90.6 | 99.9 | 104.5 | 103.4 |
| Paperboard ... | 79.0 | 80.0 | 104.0 | 102.0 | 99.0 |

‡ Revised.

** Capacity in tons: 181,813; 1948, 172,250.

### Paperboard Production (Tons)

| | Mar. 5 1949 | Feb. 26 1949 | Mar. 6 1948 |
|---|---|---|---|
| Production ..... | 157,814 | 164,620 | 193,205 |
| New Orders .... | 178,515 | 135,542 | 255,552 |
| Unfilled Orders . | 287,302 | 267,685 | 480,791 |

Percent of Activity, Current 79%; Year, 85%.

# MORE PULP REFINED

## SAME FLOOR SPACE – SAME POWER

**Sutherlands produce more refined stock per square foot of floor space than any other equipment. Further, on the average, they produce 50% more refined pulp for every k.w. of power consumed. This means that you can increase your refined stock output with Sutherlands, without the prohibitive expense of building or power plant expansion. Capital investment costs are minimum because Sutherlands utilize existing facilities; further, they increase production and improve quality because of the higher drainage rate of stock, provided only by Sutherlands. Give a few moments' thought to what all this can mean in your mill, then ask for our recommendations.**

**SUTHERLAND**
**REFINER CORPORATION**

**TRENTON, NEW JERSEY**—*Manufactured in the United States by Valley Iron Works Co., Appleton, Wisconsin*
Sutherland Refiner Ltd., Windsor Hotel, Montreal, P. Q.

**SUTHERLAND**

# Imports

Week Ending March 12

## NEW YORK

### Newsprint

Madden Reeve Angel & Co., Inc., Innaren, Gothenburg, 667 rolls.

Gilman Paper Co., Innaren, Gothenburg, 354 rolls.

N. Y. Journal American, Markland, Liverpool, N.S., 580 rolls.

N. Y. Herald Tribune, Markland, Liverpool, N.S., 1844 rolls.

World Telegram, Markland, Liverpool, N.S., 820 rolls.

Brooklyn Eagle, Markland, Liverpool, N.S., 761 rolls.

Herald Statesman Inc., Markland, Liverpool, N.S., 42 rolls.

Richmond Newspapers, Markland, Liverpool, N.S., 1816 rolls.

### Cigarette Paper

P. J. Schweitzer, Marseille, Marseilles, 15 cs.

### Writing Paper

J. L. Hudson, American Banker, Havre, 7 cs.

### Surface Coated Paper

Gevaert Co. of America, Leerdam, Rotterdam, 23 cs.

### Tissue Paper

George Lippelgoes, American Traveler, Liverpool, 6 cs.

### Wallpaper

C. A. Haynes & Co., American Traveler, Liverpool, 147 ctns.

Intermaritime Forwarding Co., American Traveler, Manchester, 23 ctns.

D. Schultz & Co., American Traveler, Manchester, 14 ctns.

Hudson Shipping Co., American Banker, Havre, 4 pkgs.

### Gummed Paper

R. F. Drakenfeld & Co., American Traveler, Liverpool, 73 cs. (not printed).

### Tracing Cloth

Keuffel & Esser Co., American Traveler, Manchester, 9 cs. (bleached cotton).

### Photo Paper

J. J. Gavin & Co., Queen Elizabeth, Southampton, 2 cs. (unsensitized).

### Packing Paper

J. P. Heffernan Paper Co., Pres. Harding, Genoa, 30 bls.

### Paper Napkins

H. W. Robinson & Co., Innaren, Gothenburg, 59 ctns.

H. W. Robinson & Co., American Shipper, London, 1 cs.

### Paper Towels

H. W. Robinson & Co., American Shipper, London, 1 cs.

### Parchment Paper

H. P. Andrews Paper Co., Knut Baake, Antwerp, 2 cs.

### Drawing Paper

R. H. Macy & Co., Knut Bakke, Antwerp, 1 cs.

H. Reeve Angel & Co., Inc., American Shipper, London, 3 cs.

### Paper Sheets

Horman Schutte & Co., Pres. Harding, Genoa, 11 cs.

### Filter Paper

H. Reeve Angel & Co., Inc., American Shipper, London, 24 cs.

### Paperhangings

Meadows Wye & Co., American Shipper, London, 2 cs.

C. A. Haynes & Co., American Shipper, London, 52 bls., 4 cs.

### Rags, Baggings, Etc.

Irving Trust Co., Loide Argentina, Santos, 68 bls. paperstock.

National Shawmut Bank, Loide Argentina, Santos, 63 bls. cotton waste.

E. J. Keller Co., Inc., Monte Brazil, Oporto, 71 bls. scrap bagging.

Railway Supply & Manufacturing Co., American Manufacturer, Manchester, 68 bls. cotton waste.

Melchers, Inc., Marchen Maersk, Hong Kong, 260 bls. cotton waste.

New England Waste Co., Marchen Maersk, Hong Kong, 340 bls. cotton waste.

National City Bank, Emma Bakke, Rotterdam, 71 bls. jute bagging.

Midwest Waste Materials Co., Vulcania, Genoa, 87 bls. rags.

Castle & Overton, Inc., American Lawyer, Rotterdam, 139 bls. bagging.

A. W. Fenton Co., Aalsdyk, Antwerp, 150 bls. scrap bagging.

Irving Trust Co., Aalsdyk, Antwerp, 57 bls. bagging.

E. J. Keller Co., Inc., Hellenic Beach, Genoa, 67 bls. jute bagging.

Irving Trust Co., Innaren, Gothenburg, 92 bls. rags.

Guaranty Trust Co., Knut Bakke, Antwerp, 73 bls. old mixed fustians.

J. J. Rozendaal, Knut Bakke, Antwerp, 223 bls. cotton waste.

A. de Vries Trading Corp., Knut Bakke, Antwerp, 158 bls. scrap bagging.

E. J. Keller Co., Inc., Knut Bakke, Antwerp, 207 bls. old bagging.

Midwest Waste Materials Co., Knut Bakke, Antwerp, 43 bls. paperstock, 158 bls. scrap bagging.

(——), Knut Bakke, Antwerp, 52 bls. scrap bagging.

Midwest Waste Materials Co., Ivor Jenny, Amsterdam, 144 bls. jute bagging.

### Old Rope

(——), American Manufacturer, Glasgow, 117 coils.

### Gluestock

John Gorvers, Santa Clara, Barranquilla, 100 rolls.

Darmstadt Scott & Courtney, Agwiprincess, Tampico, 105 bls.

Darmstadt Scott & Courtney, Agwiprincess, Vera Cruz, 39 bls.

### Casein

American Cyanamid Corp., Agnete, Buenos Aires, 860 bags.

### China Clay

Paper Makers Importing Co., Bristol City, Swansea, 300 tons.

United Clay Mines Corp., Bristol City, Swansea, 104 tons, 10 cwt.

### Woodpulp Boards

Jay Madden Corp., Innaren, Gothenburg, 132 rolls (solid white).

## PHILADELPHIA

National Casein Sales Co., Mormacisle, Buenos Aires, 2000 bags lactic casein.

Chase National Bank, American Traveler, Liverpool, 63 bls. paperstock.

Madden Reeve Angel & Co., Inc., Innaren, Gothenburg, 552 rolls newsprint.

Pulp Sales Corp., Innaren, Gothenburg, 396 bls. prime bleached sulphite pulp, 69 tons.

E. J. Keller Co., Inc., Knut Bakke, Antwerp, 80 bls. old bagging, 103 bls. old waste bagging.

Fulton Weeks Corp., Agnete, Rio de Janeiro, 145 b's. gluestock.

## BALTIMORE

Washington Daily News, Innaren, Gothenburg, 338 rolls newsprint.

Pulp Sales Corp., Innaren, Gothenburg, 1013 bls. prime unbleached sulphate pulp, 202 tons.

## NEWPORT

Chemical Bank Trust Co., Aalsdyk, Antwerp, 128 bls. jute waste.

## NORFOLK

Security National Bank (Raleigh, N.C.), 120 rolls newsprint.

## RICHMOND

Richmond Newspapers, Inc., Innaren, Gothenburg, 736 rolls newsprint.

## Canadian Asphalt Roofing

OTTAWA — The Canadian Government reports that production of asphalt roofing showed the following in January, 1949, with figures for same monthly period last year in brackets:

Asphalt shingles, 210 lbs. (squares) 75,045 (115,571) other, including asphalt siding, 33,042 (49,077); smooth surfaced rolls (squares) 86,780 (128,625); mineral surfaced rolls, 50,085 (95,026); tar and asphalt felts, 2,471 (4,037) tons; tar and asphalt sheathing, kraft base, 404 (294) tons, other base, 611 (651) tons.

Domestic sales in January, 1949, were as follows, with figures for January, 1948, in brackets:

Asphalt shingles, 210 lbs. (squares) 74,614 (89,801), other, 31,977 (47,585) including asphalt siding; smooth surfaced rolls (squares) 84,379 (112,249); mineral surfaced rolls (squares), 64,970 (111,085); tar and asphalt felts (tons), 2,262 (3,385); tar and asphalt sheathing, kraft base (tons), 430 (246), other base (tons), 793 (523).

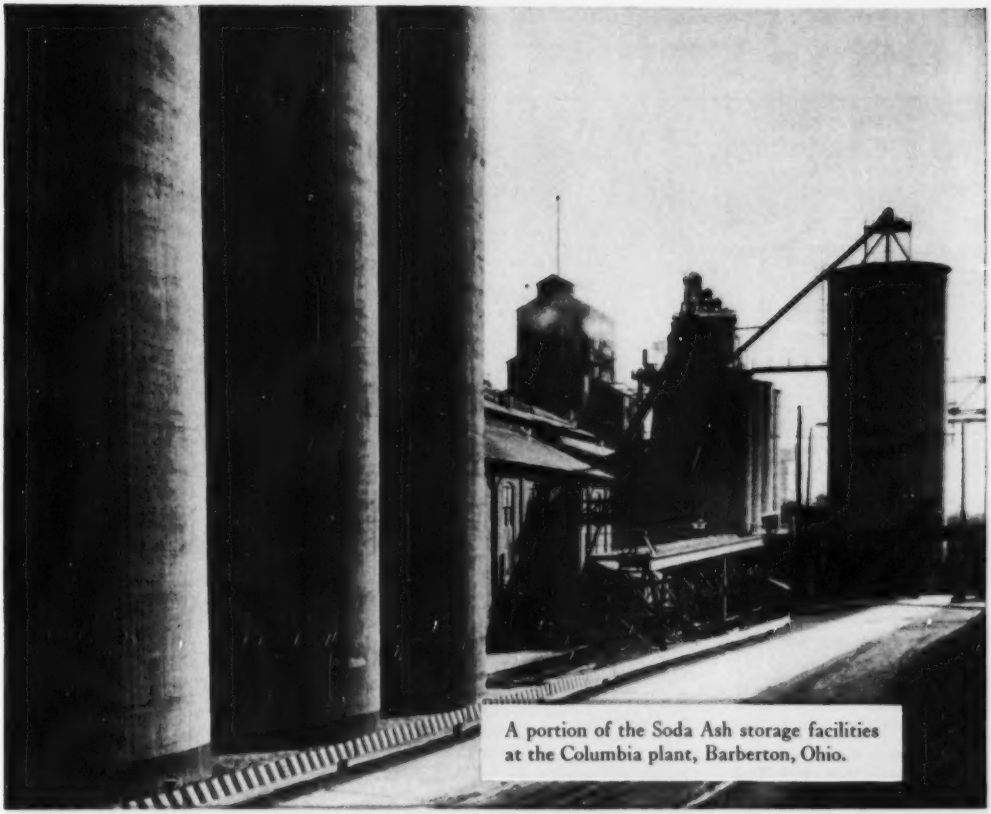
## Newfoundland Exports

OTTAWA — Newsprint and paper exports from Newfoundland, which will become a part of Canada after March 31, formed 32 percent of exports during fiscal year 1948 compared with 28.6 percent in the preceding fiscal year, with forestry products exports also rising to 6.9 percent in the 1948 fiscal year as against 3.8 percent in the previous year. Such newsprint and paper exports in 1948 fiscal year totaled $25,720,000 as compared with $20,730,000 in preceding fiscal year, while exports of pulpwood and pitprops advanced to $5,570,000 in 1948 compared with $2,740,000 in preceding fiscal year.

## Canada to U. K. via ECA

OTTAWA—United Kingdom procurement in Canada via ECA authorizations to February 28, 1949, includes $4,600,000 worth of paper and products, $22,700,000 woodpulp, and $30,624,000 lumber and sawmill products.

Authorizations under the program in Canada for all countries show under wood and wood products $826,000 worth of pulpwood, $34,560,748 lumber and sawmill products, $16,464,500 woodpulp and $21,780,510 paper and paper products, totaling $73,631,758 under this classification up to the aforementioned date.



A portion of the Soda Ash storage facilities at the Columbia plant, Barberton, Ohio.

*Here's why it pays you to use Columbia Soda Ash — Light or Dense*

**Made for Your Requirements**—Columbia's original product; manufactured, since 1899, with intimate knowledge of the specific needs of all types of industrial applications.

**Controlled Quality**—Eliminates variables which can cause production difficulties. Highest standards maintained to produce Soda Ash which always tests 99-100% $Na_2CO_3$, with an $Na_2O$ equivalent of 58% plus.

**Precise Grading**—Density, for the grade specified, is uniform in particle size. Your production methods require no adjustments for Columbia Soda Ash.

Check your Soda Ash requirements with Columbia . . . you'll receive excellent service—another important factor in your operations.

COLUMBIA CHEMICALS

CHICAGO · BOSTON · NEW YORK · CINCINNATI · MINNEAPOLIS · CHARLOTTE · ST. LOUIS · PITTSBURGH · CLEVELAND · PHILADELPHIA · SAN FRANCISCO

PAINT · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

# Prices

**Quotations indicate trends in an open market. At the moment they can be of little more value. While some volume business still is done under contract at the figures shown, fluctuations are too varied and frequent to permit prices to be interpreted as representing a wholly stabilized market.**

## NEW YORK

### Paper

Delivered New York

STANDARD NEWS, per ton—

| | | |
|---|---|---|
| Rolls, contract | $100.00/ | — |
| Sheets | 115.00/ | — |

F.o.b. mill, varying freight allowances, Zone 1.

KRAFT—per cwt., 40# base wgt.

| | | |
|---|---|---|
| No. 1 Wrapping | 7.75/ | 8.00 |
| Standard Wrapping Rolls | 7.00/ | — |
| Standard Wrapping Sheets | 7.50/ | — |
| Standard Bag | 6.50/ | — |
| Multiwall Bag, 40# and heavier, 24x36 (500 sheets) | | |
| Southern | 7.50/ | 7.75 |
| Northern | 8.85/ | 10.15 |

TISSUES—Per Ream 24x36 (480) 10/11 lbs.

| | | |
|---|---|---|
| Wh. No. 1 Frd. | $1.84/ | $2.00 |
| Wh. No. 1 M. G. | 1.94/ | 2.00 |
| Wh. No. 1½ | 1.65/ | — |
| Wh. No. 2 | 1.45/ | 1.55 |
| Kraft Anti-Tar | 1.65/ | — |
| Kraft Unbl. | 1.85/ | — |
| Shred. Wh. No. 1 per lb. | .12¾/ | .18 |

TOILET—Per Case of 100 rolls—1 M Sheets.

| | | |
|---|---|---|
| Unbleached 4½x4½ | $7.20/ | — |
| Unbleached 4½x5 | 5.85/ | — |
| Bleached 4½x4½ | 8.00/ | — |
| Bleached 4½x5 | 8.45/ | 8.80 |
| Per Case of 50 rolls—1500 sheets | | |
| Unbleached 4½x4½ | $5.70/ | — |
| Per Case of 50 rolls—2000 sheets | | |
| Unbleached 4½x4½ | $6.95/ | — |
| Bleached 4½x4½ | 7.70/ | — |

PAPER TOWELS—Per Case of 3750—Zone 1.

| | | |
|---|---|---|
| Wh. Jr. M'tif'd 9¼x9½ | $5.45 | |
| Br. Sr. M'tif'd 10x12 | 3.80 | |
| Br. Jr. M'tif'd 9½x9¼ | 3.30 | |
| Br. Jr. Sgl. fold 10x10¾ | 3.35 | |

MANILA, per cwt.

| | | |
|---|---|---|
| No. 1 Jute Tag, sheets* | $15.05/ | — |
| Reg. Jute M.F. Manila, sheets* | 13.50/ | 15.50 |
| No. 1 Manila Wrapping | 8.75/ | 10.50 |
| Printing Manila | 10.00/ | 11.00 |

* Less usual allowance for rolls.

BOARDS, per ton—

| | | |
|---|---|---|
| Filled News | $80.00/ | $82.50 |
| Plain Chip | 80.00/ | — |
| Blchd. Mla. L-d. Chip* | 102.50/ | 105.00 |
| White Pat. coated* | 120.00/ | |
| Kraft Liners 42 lb. | 105.00/ | |
| Kraft Corr. .009 | 110.00/ | |
| Binders Boards | 120.00/ | 126.00 |

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1:

RAG CONTENT BONDS AND LEDGERS—

White, 20 lb.

BONDS, per cwt.

| | Carton | 4 Cart. | Ton |
|---|---|---|---|
| 100% Rag Ex. No. 1 | $55.50 | $51.40 | $49.30 |
| 100% Rag | 48.25 | 44.55 | 42.70 |
| 75% Rag | 37.50 | 34.55 | 33.10 |
| 50% Rag | 31.50 | 28.75 | 27.60 |
| 25% Rag | 28.00 | 25.50 | 24.50 |

LEDGERS, per cwt.

| | | | |
|---|---|---|---|
| 100% Rag Ex. No. 1 | $57.00 | $52.65 | $50.50 |
| 100% Rag | 49.50 | 45.80 | 43.90 |
| 75% Rag | 38.75 | 35.80 | 34.30 |
| 50% Rag | 33.00 | 30.05 | 28.85 |
| 25% Rag | 29.50 | 26.80 | 25.70 |

SULPHITE BONDS AND LEDGERS—

White, 20 lb.

BONDS, per cwt.

| | | | |
|---|---|---|---|
| No. 1 | $21.25 | $19.25 | $18.50 |
| No. 2 | 20.25 | 18.30 | 17.55 |
| No. 4 | 19.25 | 17.55 | 16.85 |

LEDGERS, per cwt.—

| | | | |
|---|---|---|---|
| No. 1 | $21.75 | $19.65 | $18.85 |
| No. 2 | 20.75 | 18.75 | 18.05 |
| No. 4 | 20.00 | 18.10 | 17.35 |

WHITE BOOK, per cwt.—

| Process Coated | Case | Ton |
|---|---|---|
| No. 1 Glossy | $20.75 | $20.05 |
| No. 2 Glossy | 19.05 | 18.90 |
| No. 3 Glossy | 18.90 | 18.25 |
| Machine Coated | | |
| No. 1 | $17.00 | $16.25 |
| No. 2 | 14.90 | 14.15 |
| Uncoated | | |
| No. 1 Antique (Watermarked) | 16.40 | 15.80 |
| Offset | 15.15 to 17.15 | 14.60 to 16.40 |
| A Grade E. F. | 15.40 | 14.85 |
| A Grade S. C. | 15.90 | 15.35 |
| B Grade E. F. | 15.15 | 14.55 |
| B Grade S. C. | 15.65 | 14.95 |

## World Wood Pulp Markets at a Glance

### Second Quarter Contract Prices, Per Short Air-Dry Ton

| | Delivered, with varying freight allowances | | On dock Atlantic Ports with frt. allow. up to $7.50 gross | | |
|---|---|---|---|---|---|
| | U. S. | Canadian | Swedish | Finnish | Norwegian |
| Groundwood | $80.00/ — | $80.00/ — | | | |
| Sideruns Pulping News | | 80.00/ 90.00 | | | |
| Soda, Bleached | 130.00/135.00 | 130.00/ — | | | |
| Sulphate, Bleached | $132.50/136.00 | 140.00/150.00 | 137.50/140.00 | | |
| Sulphate, Unbl'd North'n | 105.00/125.00 | 112.50/125.00 | 112.50/ — | 112.50/ — | |
| Sulphate, Unbl'd South'n | 95.00/ — | | | | |
| Sulphite, Blchd. (S'ftw'd) | 126.50/135.00 | 135.00/ — | 132.50/ — | 132.50/ — | 140.00/165.00 |
| Sulphite, Blchd. (H'dw'd) | 125.00/145.00 | | | | |
| Sulphite, Unbleached | 118.00/ — | 125.00/ — | 120.00/122.50 | 122.50/ — | |
| Sulphite, Unbl'd (Glassine) (No freight allowed) | | 118.00/ — | | | |

## Waste Paper Market

### Base Prices to Mills for Average Packings

F.O.B. Shipping Point (Per Ton)

| | New York Feb. 25 | Philadelphia Mar. 15 | Boston Mar. 5 | Chicago Feb. 1 |
|---|---|---|---|---|
| No. 1 Hd. Wht. Env. Cuts | $95.00/100.00 | $90.00/100.00 | $90.00/105.00 | $90.00/100.00 |
| No. 1 Hd. Wht. Shvs., unr'l'd | 80.00/ 85.00 | 65.00/ 75.00 | 80.00/ —— | 80.00/ —— |
| Super Soft Whit. Shvs. | 80.00/ 85.00 | 65.00/ 70.00 | 80.00/110.00 | 75.00/ —— |
| No. 1 Soft Wht. Shvs. | 60.00/ 65.00 | 45.00/ 50.00 | 70.00/ 80.00 | 55.00/ —— |
| No. 1 Fly Leaf Shvs. | 40.00/ —— | 18.00/ 22.00 | 35.00/ 40.00 | 35.00/ —— |
| No. 1 Gdwd. Fly Leaf Shvs. | 20.00/ 30.00 | 14.00/ 16.00 | 25.00/ —— | 45.00/ —— |
| No. 1 Heavy Books & Mag. | 17.00/ 19.00 | 14.00/ 18.00 | 22.00/ 23.00 | 23.50/ —— |
| Mixed Books | 9.00/ 11.00 | 8.00/ 10.00 | 12.00/ —— | 9.00/ —— |
| No. 1 Wht. Ledger | 35.00/ 40.00 | 35.00/ 40.00 | 45.00/ 50.00 | |
| Colored Ledger | 30.00/ 32.50 | 30.00/ 32.50 | 37.50/ —— | 30.00/ 31.00 |
| Manila Tab. Cards | 55.00/ 60.00 | 55.00/ 60.00 | 65.00/ 75.00 | 65.00/ —— |
| New Manila Env. Cuts | 65.00/ 75.00 | 60.00/ 65.00 | 60.00/ 70.00 | 70.00/ —— |
| Extra Manilas | 20.00/ 25.00 | 20.00/ 25.00 | 30.00/ 35.00 | 30.00/ 35.00 |
| Mxd. Kraft, Bag Cuts | 45.00/ 55.00 | 45.00/ 50.00 | 70.00/ —— | 60.00/ —— |
| Kraft Envelope Cuts | 65.00/ 70.00 | 65.00/ 70.00 | 70.00/ 75.00 | 65.00/ —— |
| Trpl. Std. No. 1 Brn. Sft. Kraft | 35.00/ 40.00 | 25.00/ 35.00 | 40.00/ 45.00 | 40.00/ —— |
| New Kraft Corr. Cuts | 30.00/ 35.00 | 30.00/ 35.00 | 45.00/ —— | 55.00/ —— |
| No. 1 Asstd. Old Kraft | 30.00/ 35.00 | 30.00/ 35.00 | 25.00/ —— | 20.00/ —— |
| Used Kraft Bags | 30.00/ 35.00 | 30.00/ 35.00 | 30.00/ —— | 35.00/ —— |
| New Jute Corr. Cuts | 18.00/ —— | 18.00/ 20.00 | 16.00/ —— | 17.00/ 18.00 |
| Old Corrugated | 14.00/ 15.00 | 12.00/ 14.00 | 12.50/ 14.00 | 14.00/ —— |
| No. 1 News | 12.00/ 14.00 | 7.00/ 10.00 | 11.00/ 12.00 | —— / 15.00 |
| No. 1 Mixed Paper | 4.00/ 5.00 | 4.00/ 6.00 | —— / 7.00 | 7.00/ —— |
| Box Board Cuts | 6.00/ 7.00 | 4.00/ 5.00 | 10.00/ —— | 10.00/ —— |
| White Blank News | 60.00/ 65.00 | 60.00/ 65.00 | —— / 60.00 | 45.00/ —— |
| Overissue News | 12.00/ 14.00 | 12.00/ 14.00 | 11.00/ 12.00 | 18.00/ —— |
| Sulphite Mill Wrappers | 12.00/ 14.00 | 7.00/ 9.00 | 15.00/ —— | 12.00/ —— |

## Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)

| | | |
|---|---|---|
| Coarse Polished—India | .33½/ | .36½ |
| Fine Polished India | .41½/ | .45 |
| Unpolished—Paper Makers | .32¼/ | .34½ |
| Tube Rope | .33¼/ | .35½ |
| Wrapping | .36 / | .38¼ |
| Cotton | .58 / | .60 |
| Polished Cotton | .55 / | — |
| (Hard Fiber) | | |
| Mex. Sisal | .21 / | .27 |
| Manila (Reprocessed) | .31 / | .35 |
| (American Hemp) | | |
| Polished Hemp | .46½/ | .48 |
| Unpolished | .35 / | .37¼ |

## Rag Market

### New Domestic Cotton Cuttings

(Prices to Dealers, F.o.b. Ship. Pt.)

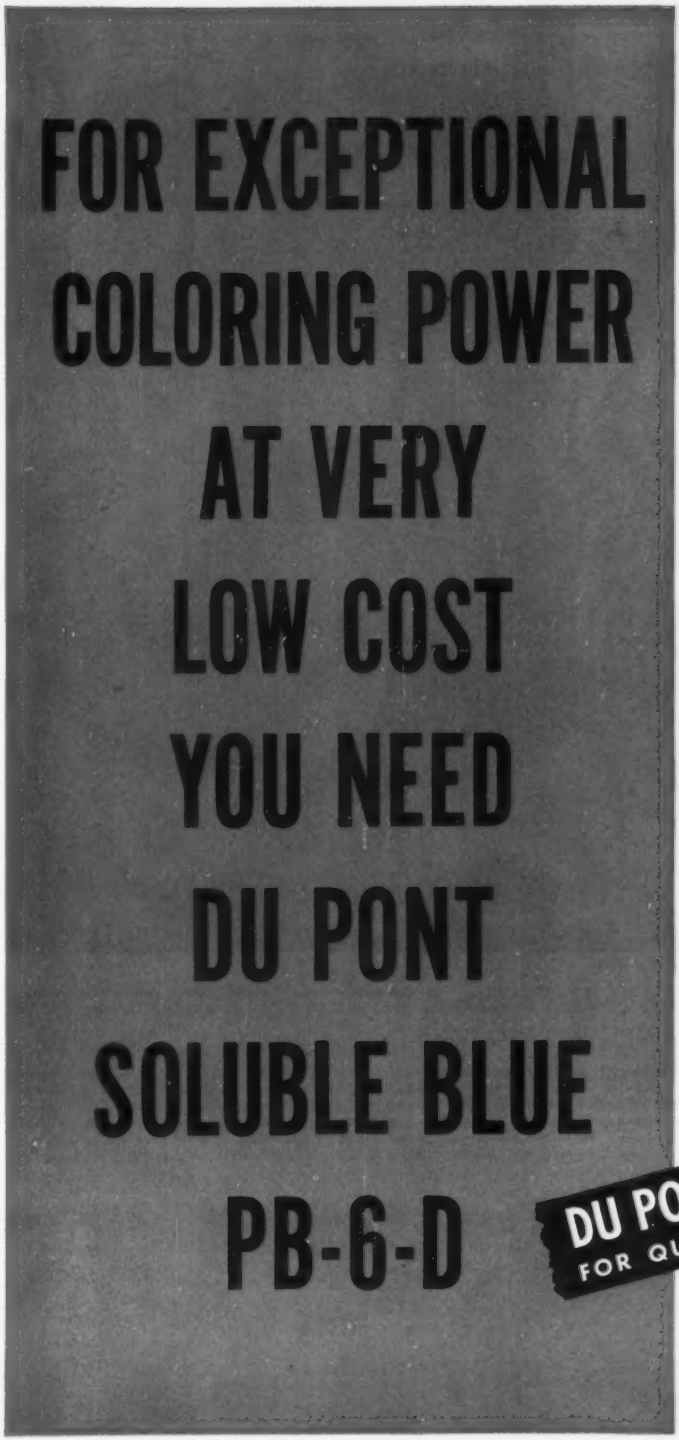
| | | |
|---|---|---|
| White Shirt | $10.00/ | $10.50 |
| Unbleached Muslin | 9.00/ | 10.50 |
| Light Silesias | 7.00/ | 7.50 |
| White Back Blue Overalls | 6.75/ | 7.25 |
| Blue Overalls | 6.25/ | 6.50 |
| Fancy Shirt | 4.50/ | 5.00 |
| Percales | 5.50/ | 6.00 |
| Light Prints | 5.50/ | 6.00 |
| No. 1 Washables | 3.00/ | 3.25 |
| Bleachable Khaki | 5.00/ | 5.50 |
| Unbleachable Khaki | 4.50/ | 5.00 |
| Cottonades | 4.25/ | 4.75 |
| Lt. Flannelettes | 7.00/ | 7.50 |
| Men's Corduroy | 3.50/ | 4.00 |
| Women's Corduroy | 3.00/ | 3.50 |

### Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

| | Per 100 lbs. | |
|---|---|---|
| No. 1 Whites, Repacked | $4.25/ | $4.75 |
| No. 1 Whites, Miscellaneous | 3.50/ | 4.00 |
| No. 2 Whites, Repacked | 2.75/ | 3.00 |

(Continued on page 36)




## Economical Du Pont Pigment for beater application provides lightfastness...easy dispersion...uniformity!

HERE'S A PIGMENT with high coloring power, which is very economical for coloring paper in the beater.

It's Du Pont Soluble Blue PB-6-D—a form of Iron Blue—so processed as to give quick and complete dispersion in water.

Soluble Blue PB-6-D has excellent lightfastness. This shows to good advantage in blotting paper, twisting paper, lining stock . . . and any beater applications where a low-cost blue with good light resistance is required.

PB-6-D is standardized for color and strength in beater paper coloring. And you can count on it for uniformity.

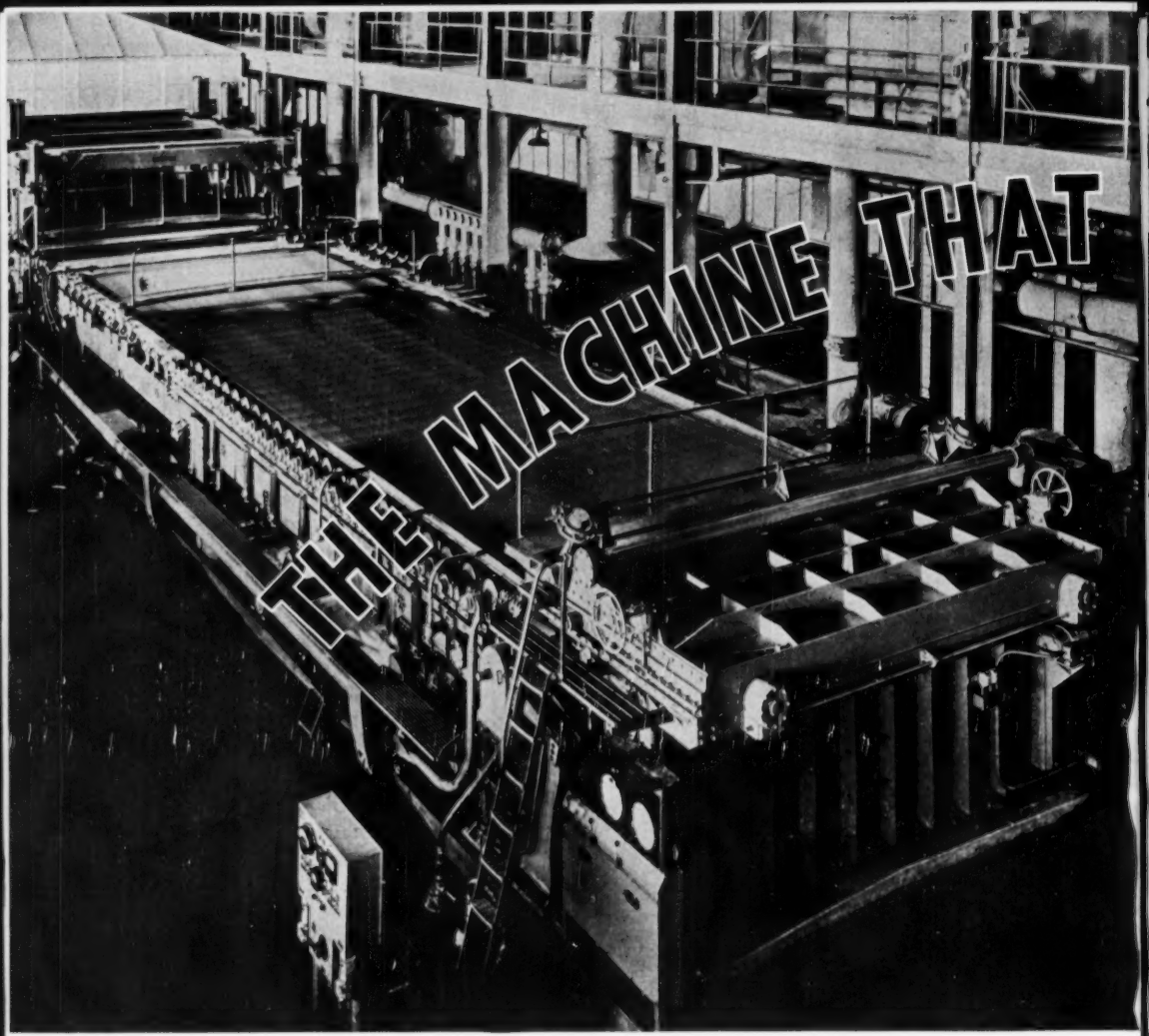
A trial order will convince you. See your Du Pont salesman or write E. I. du Pont de Nemours & Co. (Inc.), Pigments Dept., 1007 Market St., Wilmington 98, Delaware.

*Tune in to*
*Du Pont "Cavalcade of America"*
*Monday Nights*
*NBC Coast to Coast*

**DU PONT PIGMENTS**
**FOR QUALITY PRODUCTION**

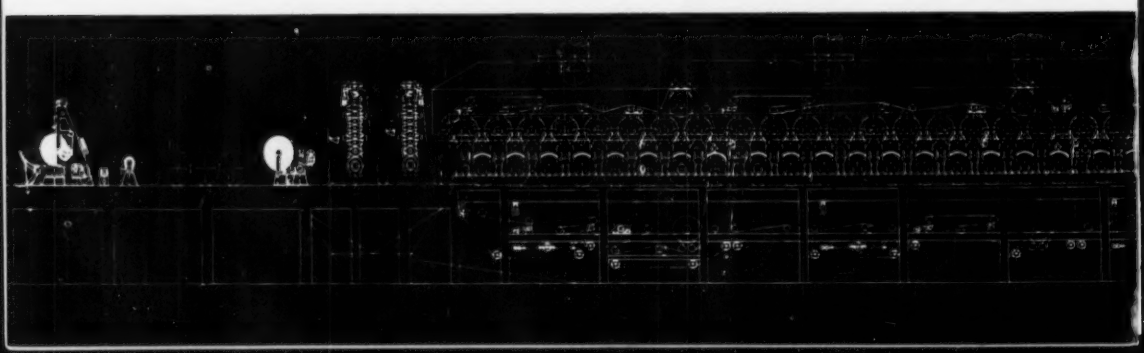
DU PONT
REG. U.S. PAT. OFF.

**BETTER THINGS FOR BETTER LIVING**
***...THROUGH CHEMISTRY***




180" Puseyjones Fourdrinier Machine in Tacoma mill of St. Regis Paper Company is the highest speed, largest production machine ever built for multi-wall Kraft Bag Paper. Designed and constructed for top speed of 2100 F.P.M. Start-up was January 5, 1949.

Line drawing of new machine. Features include latest type Puseyjones Flow Spreader with entirely new closed pressure slice designed to handle 30,000 G.P.M. of stock; Fourdrinier part for wire 180" wide by 120 feet long with high speed shake, raising and lowering device, and "Rapi-drape" wire changer with all adjustments hydraulically operated, and all framework Monel covered; Press part of latest Simplex arrangement; special creping attachment; Dryer part arranged in four separate driven sections; latest type Steam Joints with dual revolving siphons; Dryer bearings with Lucite windows for observation; two Calender stacks with pneumatic loading; improved high-speed Reel; Slitter and Winder of latest two-drum type with roll-handling device hydraulically operated; all rotating parts including drying cylinders balanced dynamically for top driving speeds.



Here is the great new Puseyjones Fourdrinier Machine for high-test multi-wall Kraft Bag Paper now setting production records in the Tacoma mill of St. Regis Paper Company.

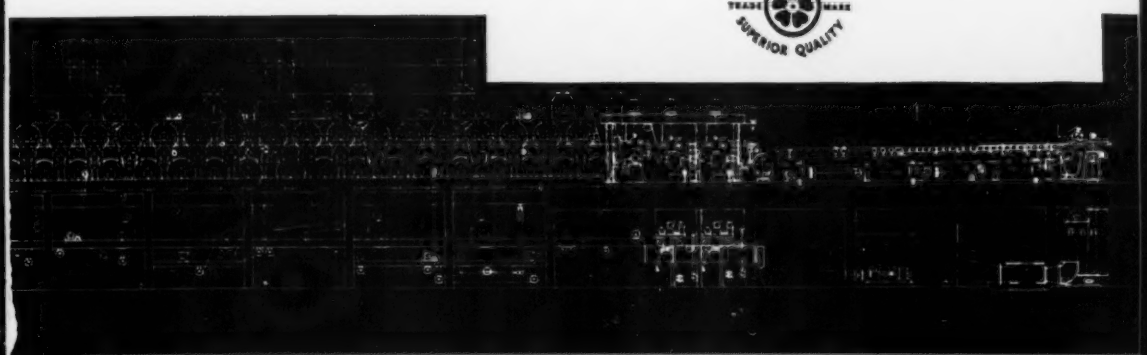
It's the machine that has everything—from the specially designed stock entrance unit to a slitter and winder designed for top winding speed of 4,400 feet per minute. Check the outstanding features detailed in the caption at left below.

The start-up of this new machine gives added meaning to the famous St. Regis slogan, "Better packaging at lower cost."

**THE PUSEY AND JONES CORPORATION**

**Established 1848. Builders of Paper-Making Machinery**
**Wilmington 99, Delaware, U.S.A.**

THE SIGN OF TRADE MARK SUPERIOR QUALITY



# Prices

CONTINUED FROM PAGE 32

| | | |
|---|---|---|
| No. 2 Whites, Miscellaneous | 2.00/ | 2.25 |
| Blue Overalls | 3.00/ | 3.25 |
| Thirds and Blues, Repacked | 2.00/ | 2.25 |
| No. 1 Roofing Rags | 1.40/ | 1.50 |
| No. 2 Roofing Rags | 1.25/ | 1.35 |
| No. 3 Jute Bagging | .95/ | 1.05 |
| No. 4 Brussels & hrd. Bck'd crpts. | .90/ | 1.00 |
| Roofing Bagging | .80/ | .95 |

### New Foreign Cotton Cuttings

(Prices to Dealer, F.o.b. Dock, N. Y.)

| | Per 100 lbs. |
|---|---|
| New Dark Cuttings | |
| New Mixed Cuttings | |
| Light Silesias | prices |
| Light Flanneletes | |
| New White Cuttings | are |
| New Unbleached Cuttings | |
| Fancy Shirt Cuttings | nominal |
| Light Prints | |
| Bleachable Khaki, No. 1 | |
| Unbl. Khaki, No. 1 | |

### Old Foreign Rags

(Prices to Dealer, F.o.b. Dock, N. Y.)

| | Per 100 lbs. |
|---|---|
| No. 1 White Cottons | |
| No. 2 White Cottons | |
| No. 3 White Cottons | |
| No. 4 White Cottons | prices |
| Extra Light Prints | |
| Old Light Prints | |
| Med. Light Prints | are |
| Dutch Blue Cottons | |
| Checks and Blues | |
| Linsey Garments | nominal |
| Dark Cottons, European | |
| Dark Cottons, Egyptian | |
| Old Shopperies | |
| New Shopperies | |

### Bagging

(Prices to Dealers, f.o.b. N. Y.)

| | Per 100 lbs. | |
|---|---|---|
| Foreign Gunny, No. 1 | $7.50/ | $8.00 |
| Domestic Gunny, No. 1 | $7.50/ | 8.00 |
| Heavy Wool Tares | 7.00/ | 7.50 |
| No. 1 Scrap Bagging | 4.75/ | 5.00 |
| Foreign Manila Rope | 5.50/ | 5.75 |
| Domestic Manila Rope | 5.50/ | 5.75 |
| Jute Strings | 6.25/ | 6.50 |
| No. 1 Sisal Strings | 5.00/ | 5.25 |
| Mixed Strings | 1.15/ | 1.30 |

## PHILADELPHIA

### Domestic Rags (new)

(F.o.b. Eastern Shipping Point)

| | | |
|---|---|---|
| White Shirt | $10.25/ | $10.50 |
| Light Silesias | 6.75/ | 7.00 |
| Unbleached Muslin | 10.00/ | 10.25 |
| Light Prints | 5.25/ | 5.50 |
| Washable No. 1 | 3.00/ | 3.50 |
| Blue Overall | 6.00/ | 6.25 |
| Percales | 5.50/ | 5.75 |
| Unbleachable Khaki | 4.00/ | 4.25 |
| Bleachable Khaki | 5.25/ | 5.50 |
| Men's Corduroy | 4.25/ | 4.50 |
| Ladies' Corduroy | 4.00/ | 4.25 |
| Cottonades | 4.25/ | 4.50 |
| Fancy Shirts | 5.25/ | 5.50 |

### Domestic Rags (old)

(F.o.b. Eastern Shipping Point)

| | | |
|---|---|---|
| Mixed White | $3.75/ | $4.00 |
| Thirds and Blues Repacked | 2.50/ | 2.85 |
| Cotton Pants & Overalls | 3.00/ | — |
| No. 1 Roofing Stock | 1.15/ | 1.25 |
| No. 2 Roofing Stock | 1.10/ | 1.15 |
| Roofing Bagging | .85/ | — |

### Bagging

(F.o.b. Eastern Shipping Point)

| | | |
|---|---|---|
| Old Manila Rope | 4.50/ | — |
| Foreign Gunny No. 1 | 8.00/ | — |
| Domestic Gunny No. 1 | 8.00/ | — |
| Sisal Strings No. 1 | 3.75/ | — |
| No. 1 Scrap | 5.50/ | — |
| No. 1 Jute Rope | 6.75/ | 7.00 |

## BOSTON

### Bagging

(F.o.b. Boston)

| | (Per 100 lbs.) | |
|---|---|---|
| Foreign Gunny | 8.50 | / 9.25 |
| Domestic Gunny | 8.75 | / 9.75 |
| Domestic No. 1 Old Rope | 6.50 | / — |
| Foreign No. 1 Old Rope | 6.50 | / — |
| Mixed Strings | 1.00 | / — |
| Transmission Rope—Domestic | 3.00 | / 3.50 |
| Jute Carpet Threads | — | / 4.00 |
| Bleachery Burlap | — | / 9.00 |
| Scrap Burlap— | | |
| Foreign | 6.75 | / 7.00 |
| Domestic | — | / 7.75 |
| South America | 8.25 | / 8.50 |
| Austr. Wool Pouches | — | / 7.80 |
| New Zealand Wool Pouches | — | / 7.80 |
| New Burlap Cuttings | 8.50 | / |
| Heavy Baling Bagging | — | / 7.50 |
| Paper Mill Bagging | — | / 6.75 |

### Domestic Rags (New)

(F.o.b. Boston)

| | (Per 100 lbs.) | |
|---|---|---|
| New Light Prints | nominal | |
| Fancy Percales | — | / 6.50 |
| White No. 1 Shirt | — | /10.25 |
| Light Flanneletes | — | / 7.00 |
| Canton Flannels, Bleached | — | / 9.00 |
| Underwear Cutters, Bleached | 10.00 | /10.25 |
| Underwear Cutters, Unbleached | 10.00 | /10.25 |
| Blue Overalls | 7.00 | / — |
| Soft Unbleached | 10.00 | /10.75 |
| Blue Cheviots | 7.00 | / 7.25 |
| Fancy Shirt | 5.00 | / 5.25 |
| Washable | 5.00 | / 5.25 |
| Khaki Cuttings | 5.00 | / 5.25 |
| Men's Corduroy | 4.50 | / — |
| Khaki Canvas | — | / 5.50 |
| B. V. D. Cuttings | 10.00 | /10.25 |

### Domestic Rags (Old)

(F.o.b. Boston)

| | Per 100 lbs. | |
|---|---|---|
| No. 1 Whites, Repacked | $4.00 | / — |
| No. 1 Whites, Miscellaneous | 3.00 | / 3.75 |
| Twos and Blues, Repacked | 2.50 | / — |
| Old Blue Overalls | 3.00 | / 3.25 |
| No. 1 Roofing Stock | — | / 1.30 |
| No. 2 Roofing Stock | — | / 1.20 |
| No. 3 Roofing Stock | — | / 1.00 |
| No. 4 Roofing Stock | — | / 1.00 |
| Roofing Bagging | — | / .80 |
| Old Manila Rope | 6.00 | |

# Markets

### Blanc Fixe

Supply ample. Prices firm. Currently quoted at $85.00 in bags, car lots, at works, 6 cents per pound, l.c.l., deld. By-product supply somewhat restricted. Quoted at $77.50 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

### Bleaching Powder

Steady improvement in supply. Demand and prices steady. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l., works.

### Casein

Demand light. Argentine market weakened by shortage of foreign exchange. Heavy U. S. Govt. purchases may firm domestic market. Current prices on processed acid precipitated casein at 23 to 28 cents per pound for domestic grades and 22½ to 24 cents for imported grades, f.o.b. shipping point.

### Caustic Soda

Demand eased. Supply adequate for prompt shipment. Prices firm. Solid caustic is reported at $3.05 per cwt. flaked and ground is quoted at $3.45 per cwt., in 400 pound drums, $3.95 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.40 per cwt.; liquid 73 percent in tank cars at $2.50 per cwt., at works.

### China Clay

Demand easier, supply of domestic and imported ample. Prices firm. Domestic filler quoted at $10 to $12.50 per ton, car lots, f.o.b. mines. Coating clay is $15 to $25. Imported clay quotation, short tons, $16 to $35, export warehouse.

### Chlorine

Some easing of demand and improvement in production makes supply condition favorable. Prices firm. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt. in multi-tank cars, f.o.b., works.

### Rosin

Price drops follow announcement of Govt. support. Gum rosin in drums per 100 pounds net in car lots, f.o.b., Savannah; B, G, H, I, K, $5.90; Wood rosin per 100 pounds net, car lots, f.o.b. Savannah; B, $4.50; FF, $6.00.

### Rosin Size

Supply good. Demand steady. Price reacts to rosin market. Seventy percent gum and pale wood grades, tank cars, $5.15 to $5.25, f.o.b. southern shipping point.

### Salt Cake

Easing of demand and steady production brings ample supply condition. Prices steady. Domestic quoted at $27.00, f.o.b. shipping point, freight allowed to destination.

### Soda Ash

Supply ample. Demand reduced by glass industry cutbacks. Prices firm. Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

### Sodium Bicarbonate

Supply ample. Demand good. Prices firm. Reported at $1.95 per cwt. paper bags, carload lots.

### Starch, Corn

Demand fair. Buying stimulated by assurance of firm price to April 4. Pearl grade quoted at $4.67 per 100 pounds; powdered starch at $4.78 per 100 pounds; car lots, f.o.b. Chicago.

### Starch, Potato

Brisk industrial demand. Maine market still uncertain awaiting Govt. action. Idaho supply tight; price firm. High grade quoted at $4.75 cwt. f.o.b. Idaho; $5.00 f.o.b. Maine; Pearl grade, $4.50/$4.75 cwt. f.o.b. Maine.

### Sulphate of Alumina

Supply good. Demand steady. Prices firm. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

### Sulphur

Demand sustained at good level. Supply good. Prices firm. Annual contracts are quoted at $18 per long ton, f.o.b. mines; $19.50, f.o.b. vessels, Gulf ports. Export price f.o.b. Gulf ports is $22.00 per long ton.

### Talc

Prices steady. Demand continues ahead of supply. Improvement due this year. Domestic grades are currently quoted at $23 per ton in paper sacks, f.o.b. mills; Canadian at $35 and up per ton. All prices in car lots.

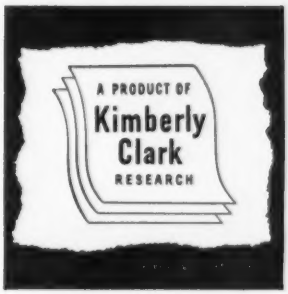
### Tapioca Flour

Supplies tighter on all grades. Demand fair. Prices steady. Superior high range from $10.25/$11.50 cwt.; high grades $9.25 cwt., on dock Atlantic and Gulf ports; medium grades range from $6.00/$7.50 cwt. on dock, N. Y. Coarse pearl grades, $5.00/$5.50 cwt. on dock N. Y.

### Titanium Dioxide

Supply reported now in balance with eased demand. Prices firm. Anastase 19½c pound carload lots, 20c l.c.l., rutile, 21½c pound carload lots, 22½c l.c.l.; 50-pound bags, f.o.b. plant, actual freight allowed.

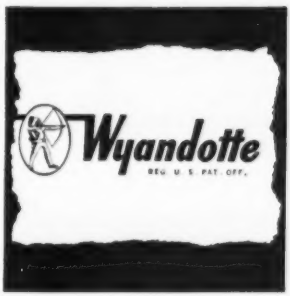
# Famous trademarks in paper




• The trademark of Kimberly-Clark Corporation identifies a host of quality paper products ranging from creped wadding to high-grade coated book papers. Each product in this widely diversified line is the result of extensive research and development work in that particular field.

• Founded in 1872 as a producer of rag newsprint, Kimberly-Clark has built its business — and its reputation — upon the principle of the best possible product, sold at reasonable cost, and customers well served.

# ...and paper making chemicals




For more than half a century, Wyandotte Chemicals Corporation has furnished paper manufacturers with a dependable supply of basic chemicals.

One product especially developed for use by the Paper Industry is Wyandotte Precipitated Calcium Carbonate, a "tailor-made" paper-coating pigment.

This highly refined chemical is uniform in particle size and entirely free from grit and other abrasives. It makes possible a coated sheet of exceptional brightness, high opacity and improved printing qualities. And it provides the coating formula with that uniformity which is so essential in machine coating.

Complete information and technical data on Wyandotte Precipitated Calcium Carbonate will be furnished at your request.

**Wyandotte Chemicals Corporation**
*Wyandotte, Mich. • Offices in Principal Cities*

SODA ASH • CAUSTIC SODA
BICARBONATE OF SODA
CALCIUM CARBONATE • CALCIUM CHLORIDE
CHLORINE • HYDROGEN • DRY ICE
SYNTHETIC DETERGENTS • GLYCOLS
CARBOSE (Sodium CMC) • ETHYLENE DICHLORIDE
PROPYLENE DICHLORIDE • CHLOROETHERS
AROMATIC SULFONIC ACID DERIVATIVES
OTHER ORGANIC AND INORGANIC CHEMICALS

# Financial Record

| Preferred Stocks | Per Share Earnings Calendar Year 1947 | Per Share Earnings Calendar Year 1948 | Indic. Annual Divid. Rate | March 15 Approx. Market Price |
|---|---|---|---|---|
| Armstrong Cork Co. $3.75 Cum. | $38.64* | $46.33* | $3.75 | 98½ |
| Armstrong Cork Co. $4.00 Cum. Conv. | 38.64* | 46.33* | 4.00 | 109 |
| Celotex Corp. 5% Cum. | 24.25c | 21.22g | 1.00 | 17 |
| Champion Paper & Fibre $4.50 Cum. | 65.90f | 61.80j | 4.50 | 93¼ |
| Container Corp. of Amer. 4% Cum. | 102.74 | 105.41 | 4.00 | 96½ |
| Crown Zellerbach $4.20 Cum. | 56.40f | 63.54g | 4.20 | 95⅛ |
| Crown Zellerbach $4.00 Cum. Conv. 2nd | 53.96f* | 60.21g* | 4.00 | 94½ |
| Dixie Cup Co. $2.50 Cum. Conv. Cla | 9.16 | 9.61m | 2.50 | 50⅝ |
| Flintkote Co. $4 Cum. | 81.91 | 83.25 | 4.00 | 99¼ |
| Robert Gair Co., Inc. 6% Cum. | 20.11 | 17.08 | 1.20 | 16¾ |
| International Paper Co. $4 Cum. | 236.51 | 242.27m | 4.00 | 97¼ |
| Johns-Manville $3.50 Cum. | 128.81 | 209.89 | 3.50 | 109¼ |
| Kimberly Clark Corp. 4½% Cum. | 70.03 | 82.79m | 4.50 | 104 |
| Kimberly Clark Corp. 4% Cum. Conv. 2nd | 41.60* | 49.18*m | 4.00 | 99 |
| MacAndrews & Forbes 6% Cum. | 62.20 | 59.89m | 6.00 | 138½ |
| Mead Corp. 4½% Cum. | 81.56 | 80.43m | 4.25 | 76 |
| Mead Corp. 4% Cum. Conv. 2nd | 33.62* | 32.68*m | 2.00 | 31½ |
| Paraffine Cos. Inc. 6% Cum. Conv. | 152.76a | 156.11 | 4.00 | 103 |
| Rayonier Inc. $2 Cum. | 13.58 | 16.43 | 2.00 | 33¼ |
| St. Regis Paper Co. 4.40% 1st A | 76.93 | 79.90 | 4.40 | 83⅛ |
| Scott Paper Co. $3.40 Cum. | 43.95 | 59.06 | 3.40 | 94 |
| U. S. Gypsum Co. 7% Cum. | 211.34 | 314.45 | 7.00 | 179½ |
| United Wallpaper Inc. 4% Cum. Conv. | (d)1.35a | (d)0.79 | 2.00 | 22⅞ |
| West Virginia Pulp & Paper 4½% Cum. | 75.75c | 81.01g | 4.50 | 106 |
| **Common Stocks** | | | | |
| APW Products Co. | $1.24 | $1.32m | $0.25 | 4 |
| American Writing Paper Corp. | 1.61 | (d)0.15 | 0.25 | 5⅛ |
| Armstrong Cork Co. | 6.41 | 7.54 | 3.00 | 46½ |
| Celotex Corp. | 6.59c | 5.73g | 2.00 | 20⅝ |
| Certain-Teed Prods. Corp. | 3.75 | 4.02 | 1.15 | 12⅝ |
| Champion Paper & Fibre | 5.57f | 6.09j | 2.00 | 22⅛ |
| Congoleum Nairn Co. | 4.55 | 5.78 | 2.25 | 29⅝ |
| Container Corp. of America | 10.09 | 10.12 | 4.50 | 35⅝ |
| Crown Zellerbach | 6.81f | 7.26g | 2.00 | 24¼ |
| Dixie Cup Co. | 5.87 | 6.26m | 1.00 | 27 |
| Eastern Corp. | 5.02 | 6.51m | 1.00 | 12¼ |
| Flintkote Co. | 6.27 | 5.86 | 2.50 | 26⅛ |
| Robert Gair Co., Inc. | 3.18 | 2.67 | 0.70 | 6½ |
| Great Northern Paper Co. | 4.56 | 4.55m | 2.80 | 38⅝ |
| International Paper Co. | 15.02 | 15.39m | 5.00 | 49⅞ |
| Johns-Manville Corp. | 3.17 | 5.22 | 2.00 | 37¾ |
| Kimberly-Clark Corp. | 4.29 | 5.16m | 1.65 | 19⅞ |
| MacAndrews & Forbes Co. | 3.68 | 3.53m | 2.50 | 32⅞ |
| Marathon Corp. | 3.39c | 4.08g | 1.40 | 20⅛ |
| Mead Corp. | 7.33 | 7.11m | 2.00 | 15½ |
| National Container Corp. | 4.13 | 2.28 | 0.80 | 7⅛ |
| Paraffine Cos. Inc. | 2.40a | 2.45 | 1.20 | 17½ |
| Rayonier, Inc. | 7.30 | 9.09 | 2.00 | 28½ |
| Ruberoid Co. | 9.89 | 11.80 | 3.25 | 51⅝ |
| St. Regis Paper Co. | 2.66 | 2.71 | 0.80 | 8⅝ |
| Scott Paper Co. | 3.02 | 4.15 | 2.50 | 48¾ |
| Sutherland Paper Co. | 6.87 | 6.02 | 2.50 | 31⅛ |
| Taggart Corp. | 1.29 | N.A. | 0.60 | 10⅜ |
| Union Bag & Paper Corp. | 7.93 | 9.17 | 4.00 | 28⅜ |
| United Board & Carton | 4.95b | 0.73h | (e) | 5¼ |
| U. S. Gypsum Co. | 10.00 | 15.04 | 6.00 | 100¼ |
| United Wallpaper | (d)0.11a | (d)0.10 | (n) | 3¼ |
| West Virginia Pulp & Paper | 11.40c | 11.51g | 4.00 | 38⅛ |

(a) Year ended 6/30/48
(b) Year ended 5/30/48
(c) Year ended 10/31/47
(d) Deficit
(e) Omitted dividend 2/4/49
(f) Year ended 4/30/48
(g) 12 months to approximately 1/31/49
(h) 12 months to 2/5/49
(j) 8 months to 12/31/48
(k) 12 months to approximately 10/30/48
(m) 12 months to approximately 9/30/48
(n) Last payment 25c, 9/16/47
(*) Pro forma—Earnings per combined preferred shares.
(N.A.) not available

## Dividends Declared

*Puget Sound Pulp & Timber Co.* declared the regular quarterly dividend of 50 cents a share on its common stock, payable March 31 to stockholders of record March 18.

*Hendershot Paper Products, Ltd.*, has declared a dividend of 25c per share on its common stock and $2.50 per share on its preferred stock, both payable April 1 to shareholders of record March 21.

*Nekoosa-Edwards Paper Co.* on March 5 declared a first-quarter dividend of 35 cents per share, payable March 31 to shareholders of record March 18.

## Can. Investment Plans

OTTAWA—The program of capital investment throughout Canada now discloses that plans for the forestry industry call for the investment of $9 million in 1949 compared with $15 million in 1948 for new construction, $8 million in 1949 for machinery and equipment as against $16 million in 1948 so that the total investment in forestry undertakings will be $18 million in 1949 as aginst $30 million in 1948. This estimate has been made by the Canadian Government.

## Can. Securities Fluctuations

OTTAWA—In reporting that security prices of pulp and paper common stocks advanced from 256.9 in December, 1948, to 257.1 in January, 1949, for a gain of 0.2 points, the Prices Branch of the Canadian Government states that among the principal price increases during this period were Abitibi and Hinde & Dauch, with principal price decreases including Dryden Paper and Howard Smith, on the base of 1935-39 equals 100.

## U. S. Envelope Elections

PORTLAND, Maine — United States Envelope Co. stockholders on March 12 elected the following directors: Ralph W. Crowell, Warren G. Davis, Joseph S. Fairchild, Albert Hale, Eldon V. Johnson, Arthur F. and Magnus F. Peterson, Robert G. Stone, Ernest M. Whitcomb, George Avery White, and Norman W. Wilson.

Magnus F. Peterson was elected treasurer, and Wadleigh B. Drummond, clerk.

## St. Regis Annual Meeting

NEW YORK—The annual meeting of stockholders of the St. Regis Paper Co. will be held at 230 Park avenue, April 8. Six directors will be elected for three-year terms. The directors whose terms expire have been renominated. They are: Carl B. Martin, Ralph B. Maltby, C. Russell Mahaney, Mason F. Ford, Walter DeLong and Thomas H. Cosford.

## Brooks Elections

SPRINGFIELD, Mass. — J. Loring Brooks, Jr., was elected president of the Brooks Bank Note Co. at the annual meeting March 7, succeeding his father, the late Joshua L. Brooks. He was also reelected treasurer. Allison R. Sanger, vice-president of the firm, was advanced to executive vice-president, and Jane H. Alden was reelected assistant treasurer.

## Sorg Ups Yost, Goodman

MIDDLETOWN, Ohio—The Sorg Paper Co. has named D. M. Yost as technical director and D. G. Goodman as assistant technical director.

# FARREL ROLL ACCURACY starts with this blueprint

During almost a century of roll making, Farrel has developed casting methods and equipment that have a great deal to do with the accuracy of a Farrel roll.

Because rolls are cast so true and with such accurate contours, they require a minimum of machining to finish to size. Even large rolls are reduced in diameter by only a fraction of an inch in the combined operations of turning and grinding. This casting accuracy is responsible for the full uniform depth of hard chilled surface being retained nearly as cast–an assurance of long roll serviceability.

Grinding is done on specially designed, two-wheel roll grinders, equipped with an automatic crowning device which unerringly produces the correct shape and amount of crown.

In the *world's largest specialty roll shop* at Ansonia, Farrel has the experience and equipment to produce accurately shaped rolls from 5" to 72" in diameter and up to 312" face. Write for full information.

**FARREL-BIRMINGHAM COMPANY, INC. • ANSONIA, CONN.**
*Plants:* Ansonia and Derby, Conn., Buffalo, N. Y.
*Sales Offices:* Ansonia, Buffalo, New York, Boston, Pittsburgh, Akron, Chicago, Los Angeles, Tulsa, Houston

*Farrel-Birmingham*

# How Users Appraise the Market for Papers

***Report released March 9 by Paper Committee, National Ass'n., Purchasing Agents, under supervision of Chairman T. A. Corcoran, Courier-Journal and Louisville Times Co., Louisville, Ky.***

Adequate or improved supply, and softening prices, seem to be the predominant characteristics in the paper market today, judging from current reports of the Paper Committee members. Even those two holdouts, kraft and newsprint, seem to be coming around to an easier market status, and slowly joining the fine papers, boxboards and containers, on their journey into the buyers' market.

### Wood Pulp

By H. L. WEBER

*Fiberboard Products, Inc.*
*San Francisco, Calif.*

There has been so little change in the wood pulp situation in the last thirty days that we could very well repeat last month's report.

Shortly after the time this will be published, the second-quarter prices will be announced. They certainly will not be any higher than those now in effect.

Inventories and consumption have changed little in the last thirty days.

Supply is still adequate in all grades.

### Kraft Paper

By T. H. TREADWELL

*W. C. Ritchie & Co.*
*Chicago, Ill.*

Although there has been no reduction in the contract price to large users, the over-all kraft market is much easier, with lower prices offered to spot buyers. There have been three price reductions in gummed tape within the past two months.

Productive capacity of kraft paper mills is approximately 2,400,000 tons annually. This does not include kraft board, for which the mill capacity is in the neighborhood of 3,500,000 tons.

The impact of multiwall sacks on the kraft market is recognized, when consideration is given to the following consumption figures taken from a recent issue of a trade journal: (1935), 310,000,000 sacks; (1943), 1,100,000,000 sacks; (1947), 2,400,000,000 sacks.

With the large range of sizes and weights of kraft used in these sacks, it is not possible to spell this out in tonnage, but it is a very large proportion. This, with the normal annual increased consumption of paper, which has been around 5 percent has kept kraft paper in short supply for a long time.

In spite of recent high costs, the kraft paper producers have been steadily adding new machines. Informed opinion is that the new machines for the production of kraft paper which have been put into operation within the past few years have total rated annual capacity of approximately 450,000 tons. This represents around 18 percent of the present total capacity.

With decline in requirements, the marginal mills which have been kept in operation during the long period of short supply will be forced to shut down.

### Fine Papers

By E. E. McCULLEY

*Courier-Journal Job Printing Co.*
*Louisville, Ky.*

Reductions in the price of the entire line of rag bonds have just been announced by a leading producer in this field.

Coming at a time when there should have been no punishing pressure from the sales standpoint, to make it necessary for this gesture to be made now instead of next week, next month or some future time, it could indicate a type of thinking that might benefit all in the industry if they could bring themselves to this approach in pricing their product.

Pleas and arguments to justify price increases during the postwar interlude have been frequent, varied and versatile. While some arguments were based on real facts, others on which price increases were made were suspect because they were based on such questionable data as to take on an opportunistic appearance, seeming to fall into the realm of excuses rather than reasons.

Price reductions that could have recently been made, to reflect falling raw material costs, were not as readily forthcoming. The same talent that found so many ready reasons for price increases is not being applied quite so diligently in finding some of the very obvious reasons to justify price reductions.

It is, at least, a healthy sign to see some members of the industry passing on, by choice rather than necessity, some of the savings in production costs that are resulting from declining raw material costs.

It is quite possible that if others explored such possibilities price reductions by necessity could be indefinitely deferred or considerably minimized.

No thinking purchasing agent wants to destroy his sources of supply by getting his requirements at less than his producer's cost; nor does he want his company to have to dispose of its product in such a manner.

That does not imply a license to let costs run uncontrolled and then complacently announce that only a legitimate profit is being added.

It does imply a real obligation. Simple to state but more difficult to achieve, a buyer can reasonably expect to be assured beyond doubt that the equipment of his vendor can produce the product at as low a cost as any available in the field; that the organization is keeping well abreast of technical developments that offer prospects of advantage; that his service is adequate; that his geographical location is advantageous, and that the management is capable, forward thinking and progressive and that both buyer and seller are anxious to keep the maximum volume of this product flowing at a profit in its legitimate trade channels and nothing that will contribute to this end will be left undone by either party.

In such an atmosphere of understanding many seemingly impossible things can be accomplished.

### Boxboard

By STUART EDGERTON

*United States Rubber Co.*
*New York City*

We could say "ditto" to our report of thirty days ago but, in order to save the reader's time, we will just restate our report of last month. There is plenty of boxboard; shipments are prompt; demand is not heavy but is not dwindling; quality is good and prices are subject for negotiation between buyer and seller. If the seller wants an order badly, the last price can be "nicked" for a dollar or two. If the buyer does not ask for this dollar or two, he is not apt to get it. In short, it's a buyers' market.

### Paper Containers

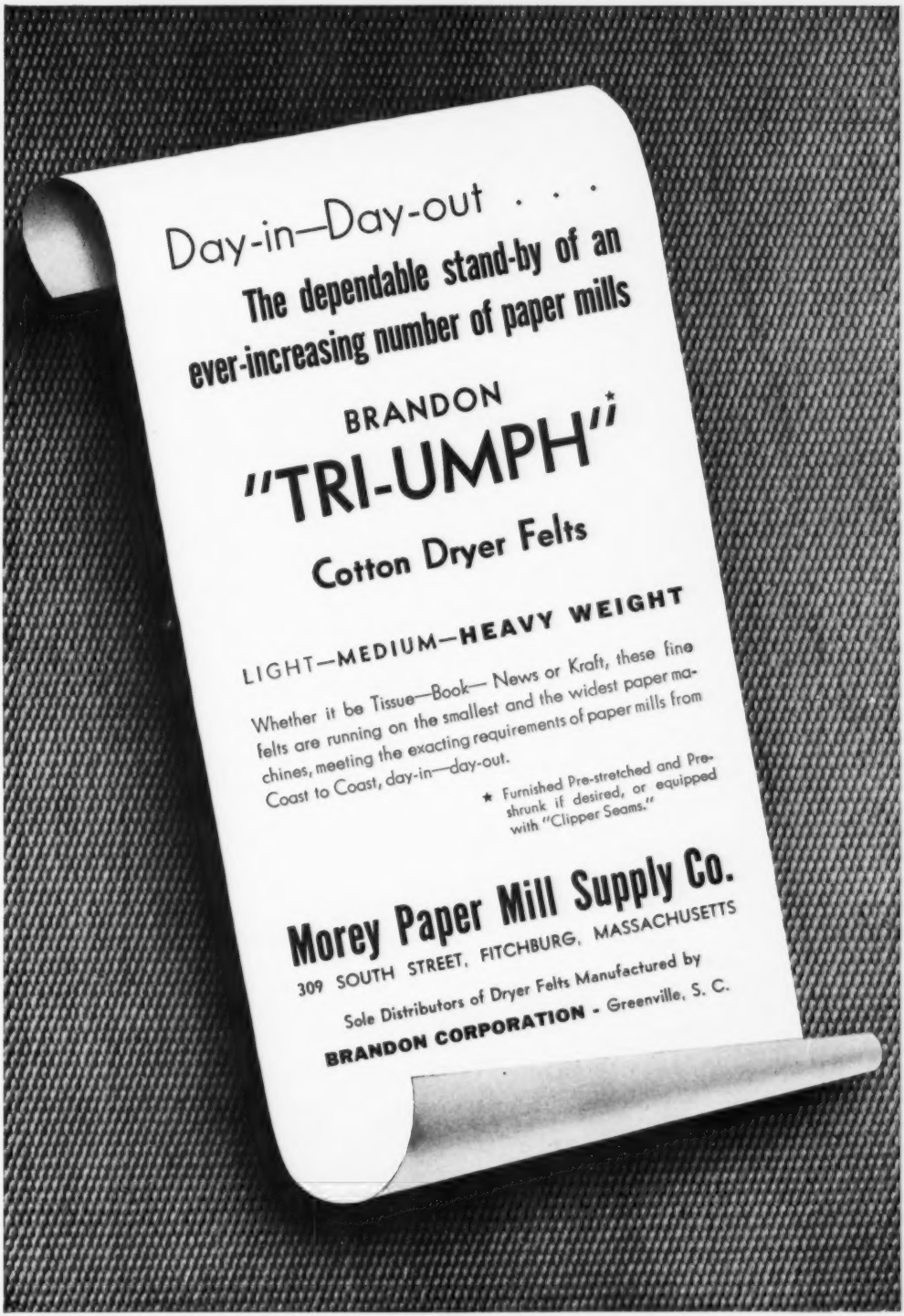
By LEE R. FORKER

*Quaker Stock Oil Ref'g Corp.*
*Oil City, Pa.*

Following the paper container report submitted thirty days ago, it is our impression that the reported trends continue with extremely active competition, declining inventories and prices, and improved quality.

Active solicitation by salesmen is reported from all sections of America, thus indicating a greater supply than

*(Continued on page 42)*


Day-in—Day-out . . .
The dependable stand-by of an ever-increasing number of paper mills
BRANDON
"TRI-UMPH"*
Cotton Dryer Felts
LIGHT—MEDIUM—HEAVY WEIGHT
Whether it be Tissue—Book— News or Kraft, these fine felts are running on the smallest and the widest paper machines, meeting the exacting requirements of paper mills from Coast to Coast, day-in—day-out.
* Furnished Pre-stretched and Pre-shrunk if desired, or equipped with "Clipper Seams."
Morey Paper Mill Supply Co.
309 SOUTH STREET, FITCHBURG, MASSACHUSETTS
Sole Distributors of Dryer Felts Manufactured by
BRANDON CORPORATION - Greenville, S. C.

## Users Appraise Market

*(Continued from page 40)*

the present demand. Although lower prices are reported in some cases of specialty items, the percentage decline is negligible.

It is forecast that, unless business demand in general increases substantially, and very shortly, paper containers will continue to reflect the general economic condition and be readily available for all requirements and at reduced prices.

### Book Paper

By RALPH N. BETTS

*American Education Press*
*Columbus, Ohio*

Not much change from last month's report.

### Newsprint

By T. A. CORCORAN

Offers of spot tonnages continue at softening prices. Newsprint of acceptable size and quality is being offered in New York at $120 to $130 ton, a sharp reduction from the fantastic prices, up to $230 ton, being quoted a year ago. The contract price, however, remains the same, $100 ton delivered New York.

Despite continued high consumption, newspapers reporting to the American Newspaper Publishers Association, were able to build inventories at the end of January to 45 days' supply. This compares with 39 days' supply at end of December, and 41 days' supply a year ago.

Consumption by all U. S. users during January amounted to 421,103 tons, an increase of 12.3 percent over January, 1948. The supply available to U. S. users in January amounted to 436,589 tons, an increase over January, 1948, of 9.1 percent. At the end of January, total North American stocks were 764,276 tons, an increase during the month of 33,584 tons.

### West Coast Conditions

By HORACE DUCKENFIELD

*Metropolitan Life Insurance Co.*
*San Francisco, Calif.*

The present recession of business that is taking place, especially in the Bay Area in California, almost since the first of the year in the printing and allied trades, coincides with the report from most dealers that the paper situation is very quiet, resulting in practically all grades being quite readily available, subject only to the restrictions of careful merchandising as to the amount on hand at any given time.

The mills up and down the Coast seem to be pretty well caught up on their backlog of orders; consequently, there is little if any delay on orders for mill shipments. This report might be applied to all grades of paper supplies.

There has been no official change in prices to date but there are definite rumors of weakness in some of the printing paper grades on specific inquiries.

It is noted particularly that wrapping and packing paper seem to be holding fairly firm.

### Canadian Conditions

By J. F. STEPHENSON

*Kraft Containers, Ltd.*
*Hamilton, Canada*

Colored krafts have again made their appearance on the market—some mills making what they consider standard colors in gray, blue, green and purple. However, the demand for these colors appears to be more or less from the smaller merchants, but shows the trend for the future.

On fine papers, the market is quite free, and the selection range has increased as to weight, size and style. The general feeling is that we are nearly back to prewar conditions.

The newsprint mills are working to capacity, but they still show an inability to fill all orders booked; consequently, there is definitely no sign of being over-the-top yet. The European situation is gradually becoming better but latest indications show it will be 1951 before they are in a position to fill all their own needs and still have a worth while surplus to export.

The local mills have very large wood piles but there has been a noticeable slackening of fresh wood coming in; however, this will not be a very serious factor, as they had accumulated larger piles than usual during 1948.

Be cautious in using any reserve that may be held.

## AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

| Current Weeks—1949 | | Corresponding Weeks—1948 | |
|---|---|---|---|
| January 29 | 94.8 | January 31 | 103.6 |
| February 5 | 93.8 | February 7 | 99.2 |
| February 12 | 94.2 | February 14 | 100.5 |
| February 19 | 93.7 | February 21 | 99.4 |
| February 26 (Revised) | 90.6 | February 28 | 102.1 |
| March 5 | *89.5 | March 6 | *99.9 |

* Capacity in Tons—181,813. * Capacity in Tons—172,250.

COMPARATIVE MONTHLY SUMMARIES

| 1948 | | | | | | 1949 | |
|---|---|---|---|---|---|---|---|
| Jan. | 100.1 | May | 100.5 | Oct. | 99.1 | | |
| Feb. | 99.8 | June | 95.7 | Nov. | 97.1 | Jan. | ‡90.6 |
| Mar. | 100.8 | July | 85.3 | Dec. | 87.1 | Feb. | ‡93.4 |
| Apr. | 100.8 | Aug. | 96.8 | | | | |
| | | Sept. | 91.8 | Year Avg. | 96.2 | | |

‡ Preliminary Ratios.

COMPARATIVE YEARLY SUMMARIES

| | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 |
|---|---|---|---|---|---|---|---|---|
| Year to Date | 103.8 | 88.4 | 88.4 | 87.7 | 96.9 | 104.7 | 100.7 | 93.6 |
| Year Average | 90.4 | 87.8 | 88.1 | 89.4 | 101.1 | 104.3 | 98.3 | |

PAPERBOARD OPERATING RATIOS†

| Current Weeks—1949 | | Corresponding Weeks—1948 | |
|---|---|---|---|
| January 29 | 88 | January 31 | 103 |
| February 5 | 87 | February 7 | 100 |
| February 12 | 86 | February 14 | 101 |
| February 19 | 86 | February 21 | 99 |
| February 26 | 80 | February 28 | 101 |
| March 5 | 79 | March 6 | 104 |

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1948 | 99 | 100 | 102 | 102 | 100 | 94 | 81 | 92 | 91 | 96 | 94 | 84 | 95 |
| 1949 | 88 | 85 | | | | | | | | | | | |

* All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

## NAWMD Conclave

CHICAGO—Among gatherings programmed during the coming 36th Annual Convention of the National Ass'n. of Waste Material Dealers, Inc., at Hotel Stevens, March 21-23 are: March 22, A. M., Meeting of Waste Paper Institute; and March 23, A. M., Meeting of Cotton Rag Council.

## Preliminary Earnings

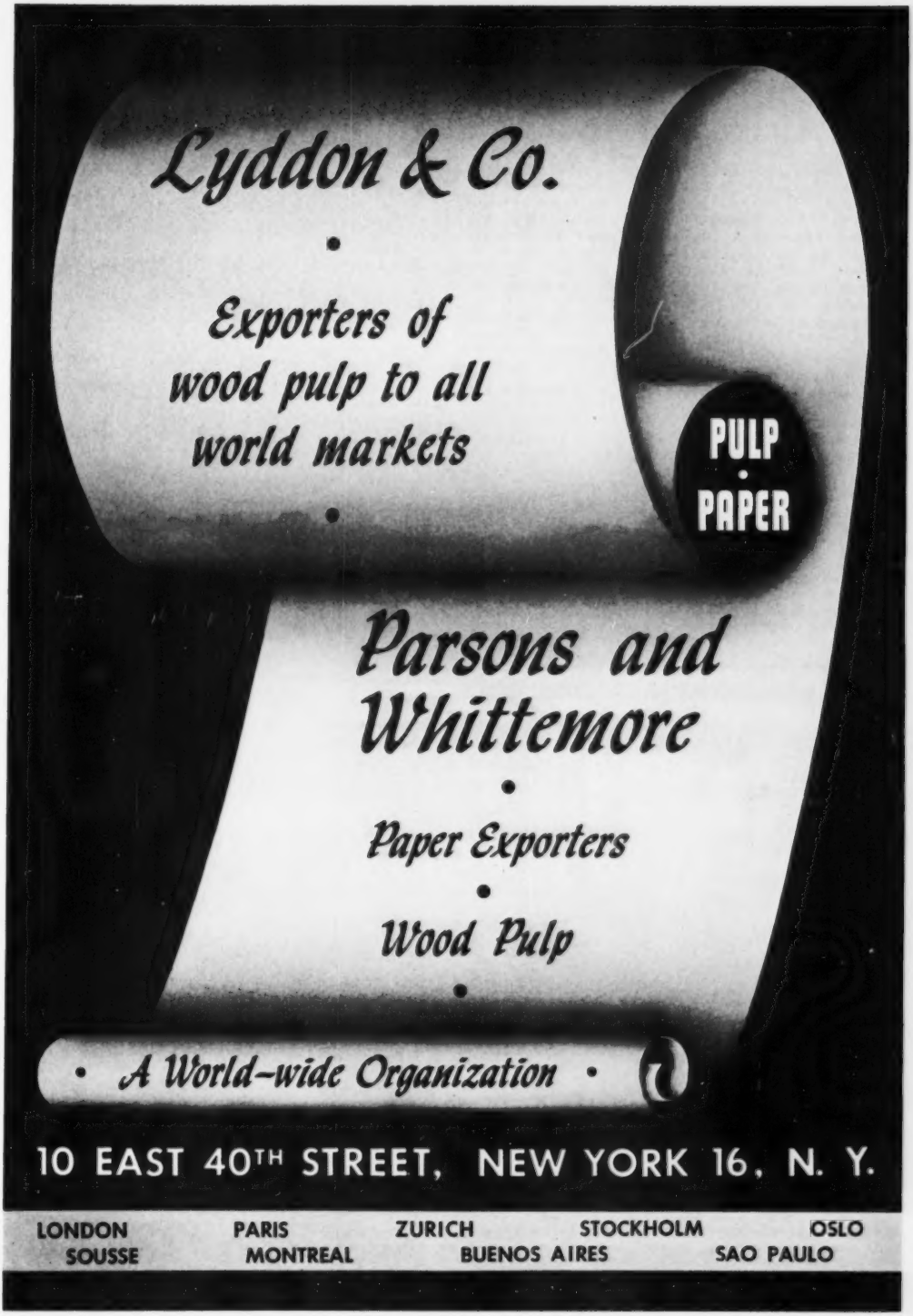
WASHINGTON—Average weekly earnings in the paper and allied products field dropped in January to $55.35, based on preliminary figures of the Bureau of Labor Statistics, compared with the revised December earnings of $56.57.

## Dinner Replaces Luncheon

CINCINNATI — The Paper & Twine Ass'n. is planning an evening party for September 27 to replace the luncheon which for years has marked that group's participation in the Fall meeting of the National Paper Trade Ass'n.

## Heads Forestry Ass'n.

OTTAWA—C. E. Hayles (Winnipeg) is the new president of the Canadian Forestry Ass'n.


Lyddon & Co.
Exporters of wood pulp to all world markets
PULP
PAPER
Parsons and Whittemore
Paper Exporters
Wood Pulp
A World-wide Organization
10 EAST 40TH STREET, NEW YORK 16, N. Y.
LONDON
PARIS
ZURICH
STOCKHOLM
OSLO
SOUSSE
MONTREAL
BUENOS AIRES
SAO PAULO

# Dr. D. S. Brown Ohio TAPPI Speaker

MIDDLETOWN, Ohio — One hundred and four members and guests of the Ohio Section of TAPPI gathered for the February meeting at the Hotel Manchester to hear Dr. Duncan S. Brown, manager, Lockland Division, Gardner-Richardson Co., talk on "Calender Stack Finishes as Applied to Boards and Folding Boxboards."

The annual meeting with the election of officers has been changed to April 21 at Hotel Manchester. Shartle Bros. is again sponsoring a cocktail party for the members.

A summary of Dr. Brown's talk, as prepared by H. A. Smith, recording secretary, is given below:

One of the main reasons for using waterboxes on board calender stacks is to obtain desirable surface properties at lower cost and often with better results than may be obtained by addition of materials to the stock in the beaters.

Calender finishing of board imparts surface smoothness, lays fuzz, increases gloss, improves the printing surface and provides a good method of coloring.

Water and starch are the two most common materials used. Starch solutions for surface application are usually enzyme converted or chlorinated to obtain low viscosities. However, some thick starch solutions are used for making the board somewhat grease resistant, especially if it is to be printed by gloss inks.

When printing board with gloss inks it is desirous to treat the surface of the board to reduce the penetration of the oil vehicle into the board and thus have the ink stay on the surface and dry by oxidation to a high gloss. Various materials are being used to obtain this condition or property of the board and these include: (1) starch and protein, (2) methylcellulose, (3) Kelgin, (4) PLF calender size, (5) PVA (poly-vinyl alcohol), and (6) carboxy methyl cellulose.

Various operating troubles may be encountered with calender sizing, for example: foaming, high viscosity, sticking and gumming of the calender rolls, and calender wrap due to slime spots and holes in the board.

Another desirable property which may be obtained by surface treatment is that of water resistance. One example is board used for outdoor signs and often seen on fronts of street cars or buses. Wax emulsions have proven very effective in meeting this severe sizing requirement. However, wax sizes make the board so repellent to water that ordinary glues will not hold, especially in laminating operations. Some of the newer resinous glues are doing a better job, but even these are not perfect.

Grease and oil resistance is a very desirable property when the board is to be used for packaging greasy and oily materials. Silicate is the cheapest material used to obtain grease resistance but is inferior to glassine laminated or special coated grades.

Calender coloring is used to obtain colored board at a lower cost than can be produced by beater dyeing. The depth of color can be varied from a slight tint to a deep brilliant shade. Dyeing the stock somewhat in the beater is used in addition to coloring at the calender, especially in obtaining some of the brilliant and deep colors.

Advantages of calender coloring are: (1) it is economical, (2) it produces brilliant shades and (3) some of the newer dyestuffs can be used to better advantage. However, there are some disadvantages, as follows: (1) poor light fastness, (2) tendency to bleed with water (except when alcohol soluble dyes are used), and (3) variation in dye take up across the deckle of the board, which is usually due to moisture and formation variations.

Some boards are treated with flameproofing reagents to reduce fire hazards. Silicates also make the surface of boards resistant to rub.

The speaker also discussed some of the apparatus required for calender treatment. This includes the equipment needed to prepare the various solutions such as pumps and mixing tanks. The water boxes may be made of wood or metal, and vary in width from a foot to two inches. The water box acts as a retainer to allow the solution to run onto the roll and up to the mix.

Some of the variables effecting the surface sizing of board for water resistance are: (1) surface porosity or hardness of board; (2) wetting ability of sizing solutions; (3) condition of calender rolls; (4) nip pressures; (5) location of water boxes (top or bottom of stack); and (6) moisture in board.

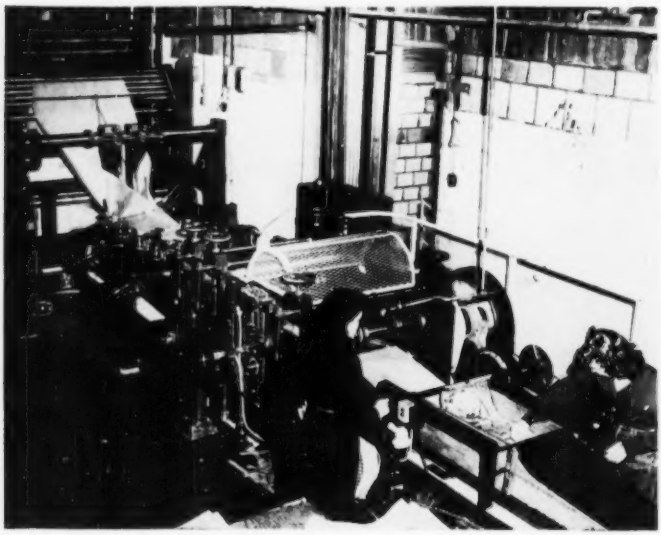
Moisture may be applied to board by steam sprays or vaporizers. Frequently two regular steam driers are placed between the two calender stacks.

It is customary to have at least one water box for each side of the sheet to prevent curling toward the treated side. This is just the opposite to paper which curls away from the wetted side.

Considerable trouble occurs with corrosion and/or pitting of the cast iron calender rolls. Causes of this are attributed to a build-up of acidity due to leaching of alum from the board.

This corrosion may usually be prevented by the addition of buffer salts to the sizing or color solution. Alloyed rolls and rolls with corrosion resistant surfaces have been tried with limited success.

## SMITH & WINCHESTER MULTI-WALL TUBER



**Latest type Smith & Winchester Multiwall Tuber in the new converting bag plant of the Hammond Bag & Paper Co., Pine Bluff, Ark., produces gusseted sewed valve type bag tubes in a wide range of sizes. . . . A. E. Weaver, plant manager, states that the tuber cuts as high as 300 bags per minute at top speed and the bags may be four, five or six wall. By removing one of the valve cut-out knives, an open mouth sewed bag tube is produced. In the background is a spot pasting unit used when making open mouth bags. Special cutting drums, under the wire guard, form the valve notch.**

2,000,000 Volt X-Ray Machine

# CORROSION AND HEAT RESISTING CASTINGS

Induction Furnaces from 600 to 2,000 pounds capacity

**Midvale's new foundry has the most modern equipment to produce these castings, large or small. Your inquiry is invited. Be sure to send for our up-to-date catalog—MIDVALOY CORROSION AND HEAT RESISTING CASTINGS. It's informative and useful.**

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Arc Furnaces 12 to 50 tons capacity

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CORROSION AND HEAT RESISTING
CASTINGS • FORGINGS AND RINGS

## Visit Coosa River Plant

CHILDERSBURG, Ala.—Southern newspaper publishers recently inspected the Coosa River Newsprint Co. plant, now under construction here. The visit highlighted the annual mid-Winter meeting of officers and directors of the Southern Newspaper Publishers Ass'n., which was held in Birmingham. Taking the party on the tour was Ed Norton, president of the company.

First stop for the group was the company office building, which has been completed and is now functioning. Later, the pumping station, filter plant and power plant were visited. They were built originaly for the Ordnance Works and have been taken over by the newsprint company on long-term lease from the government. The power plant has been sublet to the Alabama Power Co. until the newsprint company is ready to begin operations. The mill, itself, now under coenstruction, was also visited.

When the plant is in full production, it is expected to produce 100,000 tons of newsprint annually.

## Pulp From Tropical Growths

The tropics instead of the north country will be the supply of pulp for paper manufacturing in the not-distant future, Harry B. Manderson, Australian paper manufacturer, stated just before his departure for Melbourne from Los Angeles after a trip to Sweden.

"Every country has been cutting its timber faster than it has been allowed to grow," Mr. Manderson said. "The whole world is overcut. Sweden is no exception. Problems incidental to the war have caused them to use their timber for fuel instead of paper manufacturing.

"The bamboos and such tropical grasses as the kuni afford an excellent source of short fiber pulp suitable for making paper of various kinds, including newsprint. Moreover, the supply is well-nigh inexhaustible. Tropical growths in the Pacific area grow up faster than man can cut them down."

Mr. Manderson is a partner of Sir Gerald Mussen, pioneer Australian paper manufacturer who founded the Associated Pulp & Paper Mills, Ltd.

## Gault Leaves American

HOLYOKE, Mass.—Harry S. Gault, who for more than half a century has been identified with the papermaking industry, for the most part with the American Writing Paper Corp., resigned his position in the sales department effective March 2.

## Freedman Milton V.-P.

NEW YORK—Appointment of Hyman Freedman to a vice-presidency in the Milton Paper Co. was announced recently by J. Milton, president, on the 25th anniversary of "Hy" Freedman's association with the company.

## Buys Bartold-Schang, Inc.

ROCHESTER, N. Y.—Sale of Bartold-Schang, Inc., 140 North Fitzhugh st., manufacturer of fancy paper boxes for 46 years, has been announced jointly by George S. Bartold, president of the firm, and Walter J. Jamieson of New York City, purchaser. Mr. Jamieson declared manufacturing operations, suspended December 31, would be resumed at once.

Mr. Bartold, who had been with the company since its founding in 1903, said that failing health, necessitating retirement, was the only reason for the sale. Operations were suspended at the year's end, he related, because virtually all of the company's work is done on contract, and he did not wish to start a new year, since he already had decided to sell his company. Other officers have been Miss C. V. Loder, treasurer, who also plans to retire; B. E. Schang, chairman of the board; and Frederick Schang, Jr., secretary.

## 20-Year Forest Research

ABERDEEN, Wash.—Under a cooperative lease agreement between the St. Regis Paper Co. and the Forest Service's range experiment station a 20-year program of forest management research has been started with establishment of an experimental forest ten miles north of Hoquiam, Walter DeLong, vice-president of St. Regis, and Dr. J. A. Hall, director of the experiment station in Portland, reveal.

The experimental 680-acre tract is in second growth western hemlock owned by the company along the Olympic highway.

Among studies at the new station will be research in silviculture, wood utilization, practical thinning procedure, forest regeneration, and survey of costs and returns. Norman P. Worthington, Olympia, will be in charge of the station.

## More Wages and Vacations

OGDENSBURG — A general wage increase of five cents an hour for all employes, retroactive to March 7, has been granted by the Cleveland Container Corp. The company also granted a broadened vacation plan.

## Ontonagon Improvements

ONTONAGON, Mich. — The National Container Corp., mill which shut down temporarily early this month is in the midst of construction and installation of a new boiler and auxiliary equipment.

## J. D. Zellerbach Honored

STANFORD UNIVERSITY, Calif. — J. D. Zellerbach, president of the Crown Zellerbach Corp., San Francisco, has been elected a member of the board of directors of the Stanford Research Institute.

## Sessions APG Pres., G. M.

KENSINGTON, Conn.—Albert Sessions Redway has been elected president and general manager of the American Paper Goods Co. He will assume his duties on March 28.

## Two Keith Resignations

TURNERS FALLS, Mass. — J. Norman McDowell, assistant manager of Keith Paper Co. here since last September, has resigned it was stated on March 11. At the same time, the company disclosed the resignation of Vincent Richard, superintendent of the concern.

In announcing the resignations, Paul E. Hodgson, vice-president, said the firm has several prospects under consideration. He added that their positions at Keith would be absorbed by other company officials for the present.

Mr. McDowell was president and treasurer of the Carew Mfg. Co., in South Hadley, prior to its sale to Texon, Inc. At that time, he took the assistant managership of Keith Paper to succeed T. Richard Probst, who had been assistant manager and vice-president in charge of production.

## 75 Years with Dennison

FRAMINGHAM, Mass. — A television set was presented by Henry S. Dennison, president of the Dennison Mfg. Co., to Harry A. Chandler on February 21 in the presence of officers and directors who gathered to pay tribute to Mr. Chandler, who has completed 75 years of service with the company, and who is still "going strong." Mr. Chandler joined Dennison in 1874, when the main plant was at Brunswick, Maine. His first job was cutting paper box forms. When the plant was moved to Roxbury in 1894 Mr. Chandler was made assistant to the department head. In 1914 he was made head of the sample department and chairman of the new goods committee. Today he works in the company's new goods department and is still connected with the committee.

## Merrell, Jr., to Lynchburg

LYNCHBURG, Va. — G. Barrett Merrell, Jr., has been transferred here from Tyrone, Pa., by the West Virginia Pulp & Paper Co. He was in the wood buying department there since 1946.

## Miller Recounts B.W.I. Trip

OTTAWA—H. A. Miller, general manager of Continental Paper Products, Ltd., addressing members of the firm's Quarter Century Club, told of his recent trip to the British West Indies.

## New Atlanta Plant

ATLANTA, Ga.—The Atlanta Paper Co. expects to move into its new plant at Marietta and Ashby streets in July, "if the weather continues favorable," Arthur L. Harris, president, reports.

## Rye to Lewis-Brownville

CHICAGO—Joseph H. Rye is now in charge of the local office of Lewis-Brownville Sales, Inc., 400 West Madison street. He was formerly with the International Paper Co., here.

## Wallingford to T. & H.

BOSTON — Robert Wallingford has been added to the sales force of the Tileston & Hollingsworth Co. His territory will be Greater Boston.

# Suppliers

*"Pulp Bleaching Processes"* was the subject of discussion on the Black-Clawson, Shartle, Dilts lecture course program at Shartle Brothers, Middletown, Ohio, February 8. Lawrence E. Russell, of the Mathieson Chemical Corp., New York City, presented a talk covering definitions of bleaching agents and bleaching processes—both continuous and batch methods. In speaking of stage bleaching, Mr. Russell gave, in his opinion, an ideal five-stage bleaching process consisting of chlorination, caustic extraction and oxidation for the production of high strength, 80 brightness pulp from sulphate pulp. The Bleaching meeting was followed by a question-and-answer session. Mr. Russell's talk will be published in an early issue of *Paper Trade Journal*.

Next scheduled meeting on the Black-Clawson, Shartle, Dilts lecture course program will be held in the Shartle Classroom at Shartle Brothers, Middletown, Ohio, March 22, at 8:00 P. M., when the subject will be "Machine Coating" with J. R. Simpson of the Champion Paper & Fibre Co., Hamilton, Ohio, as speaker.

*Vitex Plastics*, New York City, has developed a laminating and combining process primarily intended for the bonding of all types of vinyl or acetate sheetings to paper or to themselves, Harry Schlesinger of that organization states. "This process should be of interest where clear or opaque light or heavy vinyl sheeting is required as a bond to heavy or light paper stock," he added.

*Donald S. Walker*, vice-president of Combustion Engineering - Superheater, Inc., New York City, speaking at the Twenty-Seventh Fuel Engineering Conference of Appalachian Coals, Inc., held in Detroit on March 9, appraised benefits to be derived from standardized design of industrial boiler units. He termed "engineers' whims" on the part of the manufacturer as well as the purchaser a cause of much unnecessary expense and pleaded for specification of certain basic items, leaving details to the boiler manufacturer. Boiler manufacturers do not like present high prices and long deliveries. Standardized design of industrial boiler units is one way to reduce both, Mr. Walker asserted.

*The tank lining plant* which the B. F. Goodrich Co. has established in Tuscaloosa, Ala., is now in operation. Among benefits which the plant will bring to Southern consumers are freight savings, faster deliveries and proximity to major suppliers of steel tanks, according to the company.

*Changing* from gas to oil, or vice-versa, can now be accomplished with the new fully automatic combination unit steam generators, Preferred Utilities Mfg. Corp., New York, reports. The change-over, in units employing a horizontal rotary oil burner, is accomplished by swinging the oil burner open and inserting the primary gas burner in the normal oil burning firing port. This operation requires only a few minutes. These steam generators offer fuly automatic operation from high to low fire with all grades of commercial gas and oils, including Bunker C and No. 6 oil.

*Two producers of titanium* and four other defendants were fined a total of $43,000 in New York on March 1 on charges of participation in a world wide cartel to control certain products. They pleaded nolo contendere. The cartel operated from 1920 to 1940, the Government said. Those fined were: The Du Pont Co., National Lead Co., Titan Co., Inc., Fletcher W. Rockwell, former executive of National Lead and the Titan firm; Claude F. Garesche, a National Lead vice-president; and Gustav Jessen, vice-president of Titan.

*Additions* to the executive line-up of Stein-Hall & Co., Inc., New York, at the recent stockholders meeting include the following: Lawrence Gussman, a director; Samuel Hochberger and J. P. Strasser, new vice-presidents; M. M. Kroll, an assistant vice-president.

*Leonard T. Beale*, president of the Pennsylvania Salt Mfg. Co., Philadelphia, was re-elected a member of the National Industrial Conference Board for the forthcoming year at the Board's 302nd meeting held recently in New York.

*Westinghouse Meter Division*, Newark, N. J., has named John M. Nelson manager of meter sales. J. F. Chapman succeeds him as manager of relay sales.

## GIVEN NEW DUTIES

**The Link-Belt Co., Chicago, has named J. H. Oakes (left) sales manager, enclosed drives, with headquarters at the company's Philadelphia plant. . . . He will be assisted by Harry F. Kurz (right) as representative, enclosed drives, headquarters at the Pershing Road plant in Chicago.**

*The Los Angeles office* of the Dicalite Division of the Great Lakes Carbon Corp. has been removed to the General Petroleum building, 612 South Flowe street. Telephone, MAdison 9-1611.

*Improvements* to Nettco agitator drives for extra protection against leakage and shaft scoring have been made by the manufacturer, New England Tank & Tower Co., Everett, Mass. The new design, which incorporates John Crane mechanical seals, was evolved to eliminate leakage and protect products from contamination. The seal is standard equipment on Nettco Drives Models WT, T, TA, TB and TAB, and is available for these Nettco models now in the field, the maker states.

*Link-Belt Co.* has moved its Spokane warehouse and district sales office to larger quarters at North 1303 Washington street, Spokane. Homer A. Garland is district sales manager at Spokane and J. F. Strott, Link-Belt Pacific Division vice-president and plant manager at Seattle, is in general charge of Pacific Northwest operations.

*Two additional* Hydrafiners, manufactured by the Dilts Machine Works of Fulton, N.Y., division of the Black-Clawson Co., are being installed by the Brown Co., Berlin, N.H. Addition of these two units makes six Hydrafiners on this one paper machine. The mill now has 19, all told.

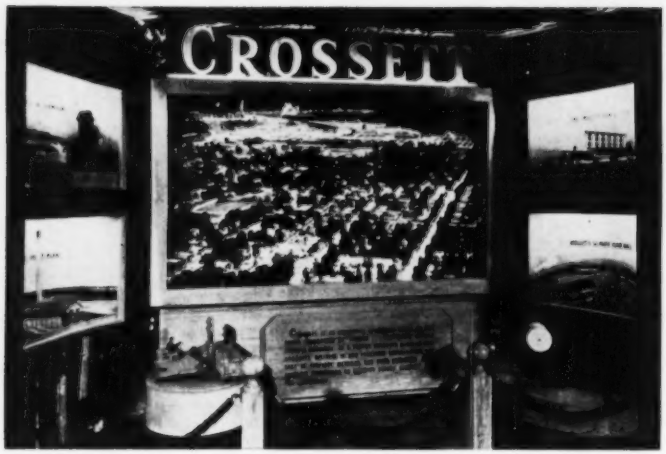
*S. W. Corbin* has been appointed assistant manager of the Industrial Divisions of General Electric's Apparatus Department, at Schenectady, N. Y. Mr. Corbin also is manager of the Resale Industries Division.

*Snyder Chemical* Corp., Bethel, Conn., reports the successful commercial production of laminating and molding sheet stock and molded pulp products using liquid phenolic resin (Synco 721) for direct addition to pulp in paper-mill beaters.

*J. A. Weatherford* has been named a special sales representative of the Chemicals Division of the Goodyear Tire & Rubber Co. with headquarters at Chicago, and A. E. Polson has been made a technical representative of the Chemical Division in Akron, Ohio.

*John L. Gillis*, director of the Monsanto Chemical Co. foreign department, St. Louis, has been appointed acting general manager of the company's Merrimac Division with headquarters in Boston. Mr. Gillis will assume the duties of Josiah B. Rutter, vice-president and general manager of that Division, who has been hospitalized for an indefinite period. The appointment is effective March 21. Mr. Gillis will

*(Continued on page 48)*




## CROSSETT DISPLAY AT STATE CAPITOL

**Arkansas selected the Crossett Lumber Co. to represent the State's forest products industries in a permanent display in the rotunda of the State Capitol in Little Rock. . . . On the center of the display is an aerial photo-mural of the city of Crossett with the name "Crossett" in large cut-out letters over the framed picture. To the left of this central picture are inset scale-models of the sawmill and power house. To the right, insets detail reproductions of the Crossett Chemical Co. still house and Crossett Paper Mills. . . . A background of trees creates the illusion created is that the models are nestling among the pines. . . . A miniature Ross Lift Truck, complete with driver and load of lumber, is especially interesting to youngsters viewing the display. There is also a scale-model of an Elwell Parker roll paper lift truck of the type in use at the paper mill.**


# Building

- **FOR THE PAPER INDUSTRY**
- We design, build, and equip paper and pulp mills . . . steam generating plants . . . and facilities for eliminating stream pollution.
- Under one contract and one responsibility, we deliver jobs complete, ready for operation.
- We also furnish engineering reports and surveys. Current cost data available at all offices.

The H.K. Ferguson Co.
INDUSTRIAL ENGINEERS AND BUILDERS

THE FERGUSON BUILDING • CLEVELAND, OHIO
OFFICES IN NEW YORK, HOUSTON, CHICAGO, CINCINNATI AND LOS ANGELES


### Suppliers

*(Continued from page 47)*

be succeeded as director of the company's foreign department at St. Louis by assistant director, Marshall E. Young. Richard T. Clark has been named branch manager of the New York sales office of the Merrimac Division, succeeding W. E. Drown who will go to Boston to become assistant to Paul O. Huntington, vice-president of the New England Alcohol Co., a partly-owned subsidiary of Monsanto, and Harold E. Duston has been appointed assistant sales manager of the surface coatings department, Everett, Mass.

*Allis-Chalmers Mfg. Co.*, Milwaukee, discloses that the first commercial installation of its Hi-Density Feeder is being planned for the end of this year. Developed originally for pulp and paper industry applications, the feeder creates paper coating mixtures of clay and water.

*The Graphic Arts Group* of the Sun Chemical Corp., which is comprised of Sun's printing ink and machinery divisions, has moved to 10-10 Forty-Fourth avenue, Long Island City I, N.Y., from 100 Avenue of the Americas (Sixth avenue) New York City.

*Converters* fabricating transparent packages for fresh fruits and vegetables will be interested in Resin Adhesive 3626, made by National Adhesives, New York City. This product which successfully bonds Pliofilm to paperboard, is an emulsion type product, white in color, which dries to a transparent film.

*Edward Pfeifer* on April 1 will become assistant district manager of sales of the Lukens Steel Co., Boston office, assisting H. G. Austin. Succeeding Mr. Pfeifer in the York, Pa., territory as a sales representative is Charles H. Pyle, who will continue to operate out of the Coatesville, Pa., office.

# Obituary

*Dr. Berthold Kaufmann*, 78, board chairman and president of the Kupfer Bros. Co., coated and embossed paper converter, with offices at 2 Astor place, New York City, and plant at Northbridge, Mass., died at his home in Great Neck, L.I., N.Y., on March 10 following a protracted illness. Prior to his arrival in the U.S. (he was naturalized in 1896), he was associated with the Wm. Stern Co., Fuerth, Germany. Dr. Kaufmann introduced many improvements in the production of fancy papers. Surviving him are his widow, Mrs. Tilil Einhorn Kaufmann; a daughter, Mrs. Fred J. Stanton; a son, Werner; and a sister, Mrs. Ida Schild.

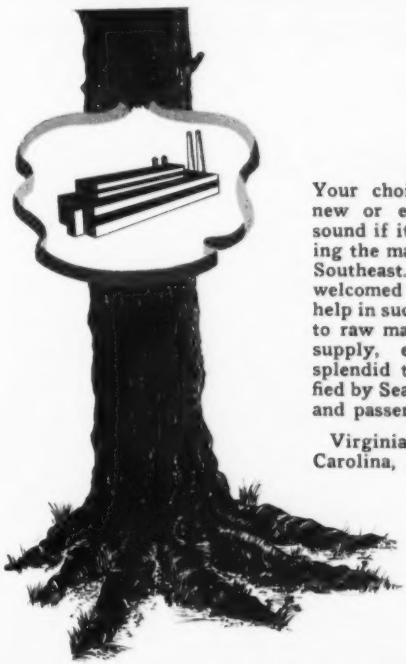
*William C. Madsen*, 30, manager of the Gary, Ind., branch office of the Reliance Electric & Engineering Co., Cleveland, Ohio, died March 8 in Marine Hospital, Cleveland. Surviving are his widow, Mrs. Mary (Roznik) Madsen; three children, Christine Ann, William, Jr., and Arthur Martin Madsen; his mother, Mrs. Marjorie Madsen; three sisters, Miss Charlotte Madsen, Mrs. Marie Louise Smith and Mrs. Marine Carlson; and three brothers, Frank, John and Arthur.

*Charles R. Brown*, 68, president of the Sterling Paper Co., Columbus, Ohio, died on March 3, at White Cross hospital in that city, following a year's illness. Surviving are his widow, Mrs. Sarah Brown; two daughters, Mrs. George Malcolm and Mrs. John Wolfe; three sons, Stephen C., John W., and Charles R. Brown, Jr.; and a sister, Mrs. Ed. Sullivan.

*John Francis Limerick*, 76, superintendent of the Lydall & Foulds Paper Co., Inc., Manchester, Conn., died at his home on March 3, following a protracted illness. Surviving are a daughter, Mrs. Paul Cervini; and two sons, Francis J. and Joseph E. Limerick.

*Al Moore*, for many years with the Southern Kraft Division of the International Paper Co., in Chicago, died on March 2.

EASY TO KEEP CLEAN!
With Blaw-Knox Grating, that's a cinch because it's practically *self-cleaning*. No sharp corners, no crevices to clog with dirt . . . and remember—
★ It's one-piece electroforged steel construction
★ The twisted bar provides safe footing at all times
★ Has maximum open area for light and air
★ Economical and easy to install whatever your grating needs
Send for FREE paper-weight-size sample.
BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2055 FARMERS BANK BUILDING
PITTSBURGH 22, PA.
BLAW-KNOX ELECTROFORGED STEEL GRATING



# Strong Roots
## for your industry—
## in the SOUTHEAST

Your choice of location for a new or expanding industry is sound if it is predicated on joining the march of progress in the Southeast. Here, enterprise is welcomed with practical, usable help in such ways as accessibility to raw materials, adequate labor supply, equable climate, and splendid transportation as typified by Seaboard's modern freight and passenger facilities.

Virginia, North Carolina, South Carolina, Alabama, Georgia and Florida — these are promising grounds in which the roots of your industry can flourish. Investigate the advantages of working—and living—as a neighbor in this friendly, forward-looking area. Along Seaboard's rails are desirable plant sites, one of which may well answer your every requirement. A brief outline of your plans will bring factual information in the form of an *individualized* survey.

Please address:

*Dallas T. Daily, General Industrial Agent*
*Seaboard Air Line Railroad Company, Norfolk 10, Va.*

SEABOARD
AIR LINE RAILROAD COMPANY

THROUGH THE HEART OF THE SOUTH

# ENGLISH ECCO CLAYS CLAYS

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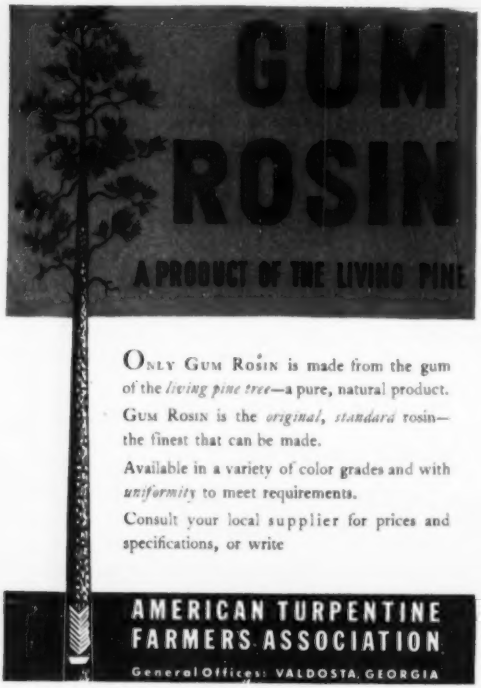
TRADE MARK

**UNIFORM SUPERIOR DEPENDABLE**

**English China Clays Sales Corporation**
**551 Fifth Avenue, New York City**




ONLY GUM ROSIN is made from the gum of the *living pine tree*—a pure, natural product.

GUM ROSIN is the *original, standard* rosin—the finest that can be made.

Available in a variety of color grades and with *uniformity* to meet requirements.

Consult your local supplier for prices and specifications, or write

**AMERICAN TURPENTINE FARMERS ASSOCIATION**
General Offices: VALDOSTA, GEORGIA

## WEST VIRGINIA PULP and PAPER COMPANY

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**Manufacturers of West Virginia Mill Brand Papers**

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| SUPERCALENDERED | ENVELOPE |
| ENGLISH FINISH | MIMEOGRAPH |
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**KRAFT CONVERTING AND KRAFT ENVELOPE**
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# COLOR

*Leaves A Smooth Surface — Will Not Crack Or Bleach*

**ESPECIALLY FOR THE PAPER TRADE**

*Great Tinctorial Strength*

**ASSURING LASTING COLOR BRILLIANCE**

Mineral Pigments

ALKALI GREENS
SYNTHETIC RED
VERY FINE UMBERS
YELLOW IRON OXIDE
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*Immediate shipment from New York, Philadelphia, Baltimore, Los Angeles, or Muirkirk, Md.*

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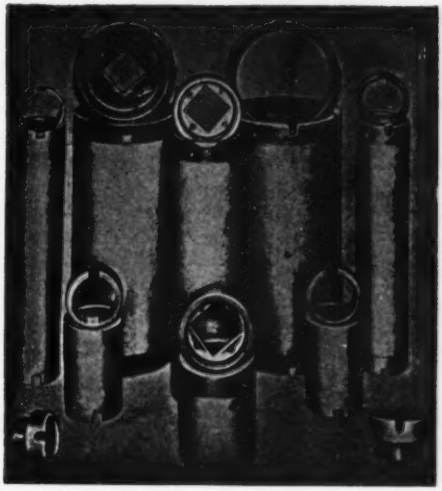

# ELIXMAN

**CAPS**

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

**CORES**

**Samples of caps or cores will be gladly submitted**

**ELIXMAN PAPER CORE COMPANY, INC.**

CORINTH, N. Y.

# *Cut Sizing Costs*

By Preparing Tub Sizings and Coatings from Raw Starch with

# AMYLIQ

*A Highly Purified Enzyme Product*

**AMYLIQ-Converted Starch Costs Less Than Modified Starch**

**Use AMYLIQ...Save the Difference**

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# CLEARING HOUSE

**HELP WANTED**

## SUPERINTENDENT

ONCE-IN-A-LIFETIME OPPORTUNITY with a Southern One-machine Folding Box Board Mill.

Must be able to produce high quality boards, is cost and production conscious, and not afraid of hard work. To such a man is offered a starting salary of **$9,000.00** a year plus an attractive bonus-arrangement, and a secure future with a fast growing organization.

Give full details in first letter, which will be held in strict confidence. Box 49-110 care Paper Trade Journal. M-17

**MEN WANTED**
**Positions Open**

Superintendent for mill making rag and sulphite papers; technical superintendent; superintendents, assistant superintendents, foremen and colorists for coating plants.

General superintendent or general manager for large mills producing specialty papers, tissues, paperboard, and newsprint, a most unusual opportunity for large man for large job.

Chemists and chemical engineers, one with Ph.D. degree; chemist and technician; industrial engineers.

Beater Engineers; cylinder and fourdrinier machine tenders and back tenders. Chief power engineers and assistants; salesman (young) technical graduate with paper mill experience to sell chemical specialties to the paper mills.

We invite correspondence (confidential) with mills seeking executives and with executives seeking new positions.

**CHARLES P. RAYMOND SERVICE, Inc.**
**294 Washington St., Boston, Mass.**

**WANTED**
**PAPER RESEARCH CHEMIST**

to supervise group of 6 to 8 men on development of paper products in research laboratory of upper midwest manufacturer of bleached groundwood, sulphite and kraft printing and converting papers. Must be well grounded in paper chemistry and manufacturing processes with development experience in these fields. Prefer man 30 to 40 years old with a good knowledge of book grade bleached papers and enamel grade coated papers. In reply give personal history, training, experience and salary expected.

**Address Box 49-52, care Paper Trade Journal.** TF

CHIEF CHEMIST WANTED for a board specialty mill. Address Box 49-84 care Paper Trade Journal. M-24

## MANAGER OF MANUFACTURING

**required by Canadian mill producing 500 tons per day of Specialty Papers, Tissues, Paperboard and Newsprint. Position requires proven managerial ability and technical qualifications for the production of paper. The location is most desirable and salary attractive. Applications giving all essential information will be kept confidential if desired — and should be addressed to**

**Box No. 49-101**
**c/o Paper Trade Journal**
M-17

WANTED: Tour Boss experienced in cylinder machine operation capable of maintaining production and quality on better grades folding boxboard. Excellent opportunity for the right man. Give full details in your reply. Box 49-135 care Paper Trade Journal. M-24

**HELP WANTED**

## SALESMAN WANTED

- **To sell grocery bags and wrapping paper to jobbing trade and large chains**
- **Salary and travelling expenses**
- **Must have experience and reside in territory**
- **Territory includes N. & S. Carolina, Georgia, Alabama and Florida**
- **We are well established Company**
- **Write full details in first letter**

**Address Box 49-149**
**Care Paper Trade Journal**
**M-17**

## MACHINERY SALES ENGINEER

Exceptional opportunity for man, aged 30 to 38, to represent leading builder of pulp and paper machinery in East or in Mid-West. Salary and expenses, with excellent prospects of advancement for man who combines mechanical sense with selling ability. Write, giving full details as to qualifications, training and experience. Our organization knows about this advertisement. Address Box 49-122 care Paper Trade Journal. M-24

PAPER CONCERN of long established reputation in sales of Newsprint, Groundwood Specialties, and Chemical Pulp, East of Mississippi River, is looking for an experienced salesman. Man we want must understand thoroughly groundwood specialties and be well known in this field. Any mill connections which he might have would increase his value to us. Salary comparable to position. Write details, experience and qualifications to Box 49-136, care Paper Trade Journal. All replies kept in strict confidence. M-17

Leading manufacturer of machinery for the paper and textile industries desires a high grade engineering graduate to supervise sales and promotion of new products. The man we want is already engaged in this field of work. Send photograph and full details of experience. Please address all your replies to P. O. Box 748, New Brunswick, N. J. TF

## RATES FOR CLASSIFIED ADVERTISING

**HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.**

**SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $2.50. If repeated ½ rate will be charged for each consecutive repetition.**

**FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $2.50.**

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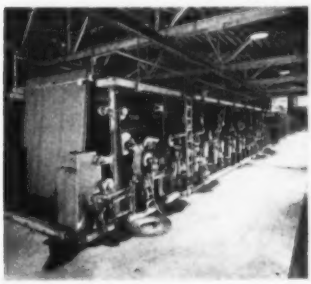
**OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $2.50.**

**Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.**

**Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.**

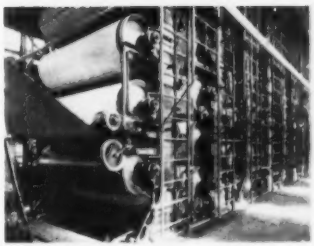
HERE are some real pirates—modern variety.

The mill with a preparatory system that employs old-style beaters for pulping is being boarded by pirates every day in the year and the loot is tremendous—slow pulping—excessive power input—cost-



ly repair bills. Shift to Hydrapulpers and plug those leaks.

The mill with a wet end that



rumbles along on out-of-balance and misaligned rolls is being outclassed daily. Too slow—too much power—excessive felt costs. A rebuilding job clearly indicated.

The mill with a dryer too small for the potential preparatory and forming speed loses a fortune every year—stabbed production—bludgeoned profit count. A pirate which a few additional dryers would knife in a hurry.

Pirates all—big-time "gold snatchers" every one. Any in your particular mill? Suppose you go out and see.

*"Everything for the Paper Mill"*

**THE BLACK-CLAWSON CO.**

HAMILTON, OHIO

SHARTLE BROS. MACHINE CO., Middletown, Ohio • DILTS MACHINE WORKS, Fulton, New York • B-C INTERNATIONAL, LTD., 16 Catherine Place, Victoria, London S-W-1, England • Western Sales Office: Mayer Bldg., Portland, Ore. • Assoc.: ALEXANDER FLECK LIMITED, Ottawa, Canada

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**BEATERS**
1—Iron tub 84x84 Shartle breaker
1—Ditts high speed with roll 56x48

**CUTTERS**
1—130" Horne duplex with duplex layboy
1—100" Hamblet duplex with duplex layboy
1— 94" Clark single with layboy
1— 84" Clark single with layboy
1— 78" Clark
2— 48" Hamblet

**DRYERS**

| | |
|---|---|
| 1—12 ft. x 180" Yankee | 4—48 x 118" |
| 1—12 ft. x 138" Yankee | 2—48 x 106" |
| 2— 8 ft. x 174" Yankee | 1—48 x 99" |
| 5— 8 ft x 174" | 16—36 x 65" |

**FOURDRINIER PARTS**
1—Wire 50' x 119" anti friction with 18" suction couch and three sets presses, rolls 20 x 100".
1—100" Fourdrinier Part with 20" suction couch, 20" diameter breast roll, 8" diameter table rolls.

**JORDANS**
1—No. 2 Appleton, anti friction, with 150 HP motor
1—No. 5 Miami, anti friction
1—No. 2 Dillon
3—Noble & Wood Pony

**MOULDS**
1—36 x 125"
1—60 x 84"
1—48 x 84"
1—96 x 84"

**PAPER MACHINE**
1—100" trim combination machine
1—84" trim facial tissue and M G machine with 8" dia. Beloit dryer
1—84" Fourdrinier paper machine

**PUMPS**
2—12 x 12 Gould triplex
1—10 x 20 Shartle duplex
1— 7 x 10 Gould triplex

**SCREENS**
3—No. 3 Bird
Flat screens, 3 to 15 plate
Leith Walk and Moore & White rotary

**SLITTERS**
1—234" Rice Barton
1—150" Moore & White four drum
1—150" Warren two drum
1—130" and one 128" Pusey & Jones two drum
1—122" Kidder
1— 62" Langston
1— 56" Cameron
1— 42" 44 W Cameron

**SUCTION ROLLS**
1—30 x 180" Couch
1—62 x 180" Press
1—25 x 166" Couch
1—18 x 148" Couch
1—18 x 92" Couch

**ELECTRIC TRUCKS**
1—Baker electric truck, model D T O
1—Walker electric highway truck, 4000 lb. Capacity, Model 42 with generator
1—Automatic tractor and piler

**FRANK H. DAVIS CO. 175 Richdale Ave., Cambridge, Mass.** TF

## HELP WANTED

**SALARIED POSITIONS $3,500—$35,000**

**If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.**

**R. W. BIXBY, INC.**
**117 Dun Bldg., Buffalo 2, N. Y.** TF

WANTED—TOUR BOSS. Large Writing Paper Mill. Must be familiar with sulphite and rag writing papers. The mill is located outside of Philadelphia. Address Box 49-125 care Paper Trade Journal. A-7

WANTED—Competent, honest man to SUPERVISE CONVERTING PLANT, manufacturing toilet tissues, napkins and towels. State previous experience. Address Box 49-126 care Paper Trade Journal. M-17

PLANT MANAGER—Must have production and sales experience. Position located in middlewest. Paper converting plant. State experience, history of employment and salary expected. Address Box 49-130 care Paper Trade Journal. M-24

SALESMAN—Fully experienced paper board salesman to handle output of specialty board mill in New York area. Investment possibility for qualified man. Address Box 49-142 care Paper Trade Journal. M-31

HELP WANTED—Machine Tender and Back Tenders for Chip Mill in Northern Illinois. Rockton Felt and Paper Co., Rockton, Illinois. M-17

## SITUATIONS WANTED

TECHNICAL DIRECTOR—CHEMICAL ENGINEER—Under forty, TAPPI member, 15 years experience—kraft, sulphite pulping, diversified papers, paperboard, stock preparation, bleaching. Employed but wants better opportunity, any location. Thrives on responsibility. Invites confidential correspondence. Address Box 49-112 care Paper Trade ournal. M-17

**RESEARCH DIRECTOR AND CHIEF CHEMIST —with a large paperboard and specialty mill for 12 years, many successful developments, finds change necessary. Health and appearance good, married, with family, desire permanent position with well established company. Expect salary to start less than now received. Address Box 49-133, care Paper Trade Journal.** A-7

## SITUATIONS WANTED

SALES ENGINEER — Industrial adhesives and starches in New England and Northern New York. College graduate and experienced technologist. Several years experience selling and demonstrating and servicing paper mills and converters. Now employed, but wishes to improve position. Address Box 49-152 care Paper Trade Journal. M-31

RESIN TECHNOLOGIST:—Desires opportunity to use experience, ideas, initiative and administrative ability. Highly successful background in formulation and uses of resins, waxes and rubbers. Proven ability in all phases of both solvent and hot melt type protective and decorative coatings, laminants, adhesives, specialty paints, lacquers, inks, saturants. Age 33. $6500 minimum. Address Box 49-150 care Paper Trade Journal. M-24

BEATER ENGINEER—wants position after April 1st. Married, temperate habits. Accustomed to all grades rag or wood. Address Box 49-118 care Paper Trade Journal. A-7

POSITION WANTED — SUPERINTENDENT. Thorough experience in the operation of Cylinder Machines making high grade folding specialties. Excellent production, maintenance and labor relations background. Desires position with progressive concern. Address Box 49-132 care Paper Trade Journal. M-17

## FOR SALE

**COMPLETE**
**BAG PLANT**
**To be Sacrificed**

15 Machines . . all recently overhauled . . equipped with motors . . ready to operate. We purchased these used machines only short time ago and have just finished reconditioning in our own machine shop. Rapid expansion in other divisions of our business has prevented our promotion of this department.

Following is partial list of bags handled on these machines:

| | |
|---|---|
| Grocery (SOS) | Automatic |
| Notion | Liquor |
| Millinery | Candy |
| Glassine | Bakery |

$5000 will handle with balance in small installments over several years.

New machines with comparable capacity would require many times this investment.

This is that opportunity of a lifetime for some alert person to open complete bag factory in an expanding market.

Can be inspected by appointment.

If you are genuinely interested write for specifications.
**Address box 49-123 care Paper Trade Journal.** M-17

FOR SALE—52" Slitter-Rewinder manufactured by Cannard. Score-cutter. Rebuilt. Ran day and night until recently when it was replaced by larger machine. Exceptional value at $2,500.00. THE PAPERCRAFT CORPORATION, Paper Square, Pittsburgh, Pennsylvania. TF

1—48" wide, 4-color Waldron Aniline Printing Press.
1—90" Creping and Plasticizing Machine. Complete with Dryer Section, Rewind and AC Motor Equipment.
17—36" diam. x 74" face Dryers. Complete with gears, frames and bearings.
1—65" Martin Squeeze Roll Waxing Machine. For Water, Finish or Dry Waxing. Equipped with 3—16" diam. Bronze Cooling Drums. AC Motor Equipment.
1—63" Dietz Heavy Type Friction Rewind Toilet and Towel Machine. 4½" x 5" Toilet and 7¼", 13½" and 15" Towels.
1—Weber Cellophane Bag Machine—Model 2CN-247—With Motor Equipment.
1—60" Flocking machine complete with explosion proof motors, brushes, exhaust system, dryers, and rewind.
1—Practically new, late type Hudson Sharp Embosser with linen pattern. Rolls 50½" wide face, Steel roll 27¾" in circumference, equipped with 10 H.P., A.C. Westinghouse motor.
1—Brand new 30" Hudson-Sharp No. FE-10 Roller Bearing Embossing Machine, late type, Linen Design Rolls.
1—36" Kidder Model SL Slitter & Rewinder. Complete with ten sets of cutters and rewind shaft.
1—50" Camachine. Type 28, Model 3D. Duplex Rewind for 30" Maximum Rolls. Shear Type Slitters. "V" Belt Drive. No Motor. As good as new.
1—48" Inman Board Slitter and Rewinder. Rewinds 48" diameter rolls.
1—32" Johnstone TWELVE Slitter and Rewinder with sufficient knives to slit ¼". Score cut. Excellent condition.
Power Paper Cutters: 4 Seybold: 40"—10Z, 54" 20th Century, 54" Holyoke and 56" Dayton. 6 Oswego: 34", 38", 44", 50", 57" and 74". 2 Acme: 32" and 42". 1 White: 44". 1 S&W Undercut: 63".
1—115" Beloit Duplex Sheeter with Duplex Slitter.
1—84" Hamblet roller bearing new duplex sheet cutter, Model 28, complete with slitting attachment, six pairs of slitters. With new Hamblet 84" electrically driven duplex layboy and two roll backstands for 30" diameter rolls.
1—96" Clark Aiken anti-friction bearing Single Rotary Sheet Cutter with slitting attachment. Moore & White 5 partition Layboy and 6 roll double-deck backstands. Excellent condition.
1—New 100" Mamco layboy with single type tandem tape system with air delivery for one pile.
1—Erie Layboy, size 85" x 45".
1—74" Norwood 9 roll stack of Super Calenders. Complete with DC Motor equipment.
1—62" sixteen roll Norwood glassine stack of supercalenders. Complete with drive and motor equipment.
1—31" Embossing Machine: 3 designs—Cobweb, Diamond and Line.
1—Noble & Wood Mammoth Jr. Jordan direct connected to a 150 HP, Type H.R., 440 volt, 3 phase, 60 cycle 400 R.P.M., with 5 KW exciter, Westinghouse synchronous motor.
2—81" Dietz Toilet Paper Perforators. Sheets 4½ x 4½ and 4½ x 5 and paper towels perforated 7½" and 13½".
1—81" Hudson-Sharp toilet paper perforater. For toilet paper 4½ x 4½" and 4½ x 5". Paper towel 7½" and 13".

**GIBBS - BROWER COMPANY, INC.**
**21 East 40th St., New York 16, N. Y.** M-17

TELEPHONE
HUMBOLDT 2-2177

CABLE ADDRESS: JACKROSS

# ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

1—Pusey & Jones 120" Fourdrinier Paper Machine, complete with enclosed drives, ball bearing wet end with suction press and suction couch, 60" diameter dryers, 2 calender stacks and winders.
1—Pusey & Jones 82" Fourdrinier Machine Complete.
1—90" Yankee Fourdrinier Machine, complete with suction couch and suction press, including all auxiliaries.

**BEATERS**

1—750 lb. Horse Iron Tub. Roll 60"x40"
2—Valley Iron 750 lb. Iron Tub—Bronze filled.
1—Downingtown 2000 lb. Beater Roll—60" x 60" —with perforated bank fall. Iron tub.
1—E.D. Jones 2000 lb. Beater Roll—67" x 66". Iron tub and bottom.
1—Dayton Breaker Beater. Roll 48 x 48. Iron Tub.
1—Downingtown 750 lb. iron tub.
1—Dayton—1500 lb. continuous breaker beater. Iron tub with rag catcher.

**BLOWERS**

1—American Sirocc Size 4
2—American Blowers #306
1—American Blower #700
1—American Blower #750
3—Buffalo Forge Co. #24 Cast Iron Blowers

**CALENDER ROLLS**

8—116" face x 9½" diameter.
4—104" face x 9½" diameter.
32 Rolls—various sizes.

**CALENDER STACKS**

1—104" face 5 roll stack, with drive
1—76" face 7 roll with drive.
1—76" face 3 roll with drive.
1—112" face 7 roll.

**CONVEYOR**

1—18½ ft long x 30" wide—with motor.

**COUCH ROLLS—BRASS**

1—104" face x 18" dia.
1—118" face x 18" dia.
1—180" face x 16" dia.
1—82" face x 19½" diameter.
2—94" face x 21¾" diameter.

**COUCH ROLLS—RUBBER**

1—110" face x 20" dia.—New
1—139" face x 19" dia.
1—141" face x 21" dia.

**CYLINDER MOLDS**

8—IMPCO 40" diameter x 84" face.
3—38" diameter x 138" face Cylinder molds with vats, couches—ball bearing.
2—74" face x 36" diameter.
1—134" face x 36" diameter, with stainless steel shafts.
1—78" face x 30" diameter.

**CYLINDERS AND VATS**

2—136" face x 36" dia.—with vats, couch, complete.

**DRIVES**

1—8C. Reeves Drive.

**DRYERS**

1—74" face x 28" diameter with gears.
5—143" face x 48" diameter.
1—124" face x 48" diameter.
4—80" face x 38" diameter.
1—77" face x 48" diameter—with gear.
1—44" face x 36" diameter.
18—78" face x 36" diameter, complete with 2 dock frames, gears, bearings and steam joints. Drives, line shaft and felt rolls are available.
1—78" face x 18" diameter with gears and bearings.
2—46" face x 24" diameter—chromium plated.
1—120" face x 18" diameter—Baby Dryer.
24—126" face x 48" diameter.
11—64½" face—36" diameter with 2 dock frames, gears and bearings.
3—63½" face—36" diameter—bearings and gears.
2—62¼" face—36" diameter—bearings and gears.

**EMBOSSER**

1—Hudson Sharp 53" Embosser. Ball bearing. Complete with winder and drive.

**EXTRACTOR ROLLS—VACUUM**

1—Downingtown—63" face x 17" diameter with bearings & stand.

**FLAT SCREENS**

5—10 plate Sandy Hill.
1—Sandy Hill 8 plate—with scraper.
1—New Sandy Hill 12 plate, with scrapers and V-belt drive.
1—Montague 6 plate—ball bearing.

**FOURDRINIER SECTIONS**

1—P & J 150" x 80 ft. ball bearing. Complete from inlet to 22" diameter suction couch. Brass and Rubber covered table rolls. 6 Brass Suction Boxes operated at 1000' per minute.
1—M & W 82" x 40' complete with 3 suction boxes, shake, 3 section presses and size press.

**HAMMERMILLS**

1—American Hammermill—37" anti friction bearing enclosed.

**HEAD BOXES**

1—110" Bronze Lead Lined. Beloit.

**INLETS**

1—Voith Inlet for 151" wire with 29" slice. Complete, including drive.

**JORDANS**

1—Jones Standard—ball bearing direct connector to 150 h.p. G.E. 440 volt motor.
1—#3 Miami, for motor drive.
1—Jones Standard for V-Belt Drive.
1—Jones Majestic, roller bearing—stainless steel lining—for motor drive.
4—Jones Majestics with base and couplings—bronze filled, 2 sets of new bronze linings.
2—#3 Appleton with base and coupling—bronze filled.
1—Dillon Horse #2—direct connected 75 h.p. Stainless steel ¼" lining.
1—#4 Smith & Winchester—Ball bearing.

**LABORATORY EQUIPMENT**

1—12" 6 roll calender stack with Westinghouse 7½ h.p. motor.

**MOTORS**

1—Fairbanks Morse — 30 h.p. — 495 r.p.m. — 220-440/360
1—Reliance 25 h.p. ball bearing, 550 v., 3 phase, 60 cycle—1750 r.p.m.
1—General Electric 150 h.p.—440 v.—3 phase—60 cycle—690 r.p.m.

**PRESS ROLLS**

1—110" face x 18" diameter—rubber.
1—101" face x 18½" diameter—rubber.
1—123½" face x 17½" diameter—rubber.
1—112" face x 18" diameter—rubber.
1—127" face x 17½" diameter—brass.
1—117" face x 24" dia.—Brass.
1—84" face x 29" dia.—Rubber.
1—108" face x 22" dia.—Rubber.
2—118" face x 21" dia.—Rubber.
5—147" face x 11¾" dia.—Rubber.
1—74" face x 18" diameter—Rubber.
1—109" face x 17" diameter—Rubber.
1—138" face x 22" diameter—Brass.
1—102" face x 16" diameter—Rubber.
1—119" face x 17" diameter—Brass.
1—76" face x 10" diameter—Brass.
1—53" face x 14" diameter—Brass.
1—55" face x 12" diameter—Iron.
1—55" face x 10" diameter—Iron.
1—74" face x 16" diameter—Iron.
1—73" face x 14" diameter—Iron.
1—102" face x 18" diameter—Brass.

**PULP EQUIPMENT**

1—Jigger—1 deck—vibrating screen.
1—Mitts & Merrill #17 Pulpwood chipper.
1—5' Carthage Disc Barker
1—32" Carthage Ball Bearing Chipper—4 knife.
2—New Stedman Disintegrators—50".

**PULPERS**

1—Bird Pulper
2—#2 Lamson Pulpers

**PUMPS**

1—Worthington Monoblock—250 g.p.m.—130' head —direct connected to 15 h.p.—3500 r.p.m.—220/440 volts, totally enclosed, ball bearing motor.
1—Ingersoll Rand—50 g.p.m.—210' head—direct connected 7½ h.p.—220-440 volt—3 phase—60 cycle totally enclosed motor.
1—New Warren—all bronze, 30 g.p.m.—60' head —connected to 1½ h.p.—440 volt motor.
1—Ingersoll Rand 150 g.p.m.—250' head—connected to 5 h.p. motor—220/440 volt motor.
1—Worthington—2000 g.p.m.—250' head.
1—Worthington 3 x 5—300 g.p.m. 75' head—1750 r.p.m. Ball bearing for motor drive.
1—Tronch Marine ball bearing. 500 g.p.m.—300' head.

**PUMPS—OPEN IMPELLER**

1—Morris open impeller—8" suction—6" discharge —belt driven.
1—Morris Vertical Open Impeller 6 x 6—800 g.p.m. 3 percent stock—50' head—connected to G.E. 15 h. p. 220-440 volt 3 phase—60 cycle—1165 r.p.m.
1—New Gould—ball bearing—8" suction—4" discharge—700 g.p.m.—60' head. Requires 20 h.p. at 1750 r.p.m.
1—New Gould—ball bearing—8" suction—6" discharge—1000 g.p.m.—43' head. Requires 25 h.p. at 1150 r.p.m.
2—New Gould—ball bearing—8" suction—6" discharge—1250 g.p.m.—60' head. Requires 20 h.p. at 1150 r.p.m.
1—New Gould—ball bearing—8" suction—6" discharge—1000 g.p.m. 40' head. Requires 20 h.p. at 1150 r.p.m.
1—New Gould 6" suction 4" discharge 500 g.p.m. 40' head. Requires 15 h.p. at 1750 r.p.m.
1—New Gould 4" suction 3" discharge 200 g.p.m. at 40' head. Requires 5 h.p. at 1750 r.p.m.

**REDUCERS**

1—Farrel Birmingham 125 h.p. 1175 r.p.m. to 104 r.p.m.
1—D. O. Jones 5 h.p. vertical right angle 1200 r.p.m. input—14 output.

**REELS**

2—Beloit 110" two bowl Reel.
1—M & W 76" 2 bowl reel.

**ROTARY KNIFE CUTTERS**

3—Sprout Waldron Cutters Type F-11. 39" knives—used 30 days.

**ROLLS**

200 Assorted felt carrying.
95—Brass Chromium Plated. Ball Bearing. 60" Base x 17" Diameter
1—Brass 120" face x 11" diameter.
1—Brass 140" face x 12" diameter.
1—Brass 130" face x 12" diameter.
1—Brass 120" face x 10" diameter—ball bearings.
2—18" diameter x 120" face with ball bearings and stands. Bored for steam.

**ROTARY SCREENS**

3—Jones Lathwalk—cylinder 84" face x 28" diameter.
1—#3A Bird Rotary—copper vats—with motors —used less than 1 year.

**SCREW PRESSES**

3—Valley Voith Screw Presses Size 2A, with new spare sets of plates.

**SHEETERS**

3—Hamblet 31" Single Knife with 6 roll back stands and motors.
1—Hamblet 81" Single Knife with 6 roll back stand and motor.

**SHREDDERS**

3—Sprout Waldron Cutters — type F-11 — 39" knives. Used 30 days.

**SLITTERS AND WINDERS**

3—Pusey & Jones 100" high speed slitters and rewinders.
1—Cameron 82" type 8 Model 5A with friction tension.
1—Cameron 56" Model 6.
1—Cameron 60"—Model 6.

**STUFF PUMPS**

1—Beloit 10 x 20 triplex—with motors and chain drives.
1—Shartle 7 x 10 Triplex.

**SUCTION COUCH ROLLS**

1—Millspaugh 22" diameter x 138¾" suction face.
1—Millspaugh 22" diameter x 158" drilled face.
1—Beloit 107" drilled face x 22" diameter. Anti friction bearings.

**SUPER CALENDERS**

3—7 roll 62" face.
1—7 roll 68" face.
1—7 roll 56" face.

**TRIMMERS**

1—56" Undercut Trimmer
1—Seybold 84" with motors.

**VACUUM PUMPS**

1— 4 Nash Hytor.
2—Nash—2.2H.
1—Nash—L-4.

## AMERICA'S LARGEST BUYERS OF PAPER MAKING MACHINERY

## FOR SALE

FOR SALE: N. J. Mounting Machines Models 57 & 58. 44" & 65" Paper Power Cutters; Fuchs & Lang 40" Coater; Beck Sheeters 36" & 55"; No. 3 Miehle 33x46; 22x39 & 70x78 Sheridan Die Cutters; 30" & 40" Slitters & Rewinders; 14x22, 20x30, 26x38 Thomson Die Cutters; No. 10 Babcock Die Cutters 55". Also complete Mounting & Finishing Division with machines like new. Write for listing and prices on these and other Paper Box and Paper Converting Machines. Selling out on pre-moving sale. Address Box 49-121 care Paper Trade Journal. A-28

## POWER REAM CUTTERS

New 44" National Automatic Clamp Power Cutters, with A.C. motors — carried in stock, ready immediate shipment.

Also specializing in the NEW 57" National Hydraulic—just out. Send for illustrated circular on this wonderful smooth running machine. Not a single gear on it.

**THOMAS W. HALL COMPANY, INC.**
Stamford, Conn.
(N. Y. Sales Office: 120 West 42nd St.)
*Also rebuilt Sheeters, Slitters, and Rewinders.*

## FOR SALE

78" Hamblet Sheeter, with Hamblet layboy and 10 roll backstand. Immediately available. Can be seen in operation. $3500.

**Paper Converting Co.** New York 17, New York Murray Hill 2-1090
240 E. 45th St. TF

## FOR SALE

Roll Pasting Equipment for 62" machine, including paste mixing tanks, pump, applicator laminating rolls, dryers, gears, steam joints, etc. For further information, write to Box 49-128, Paper Trade Journal. A-7

## CORE PIPE

3" and 4" New Steel Pipe cut to length and slotted per specification.

**ALTOONA PIPE & STEEL SUPPLY CO.**
Altoona, Pennsylvania
Phone 6151 TF

## DUPLEX CUTTER FOR SALE

One brand new 84" Hamblet Model 28 Roller Bearing Duplex Cutter with slitting attachment and Simeo Static Eliminator, Hamblet Duplex Layboy for two piles, and two roll backstand for 38" diam. rolls. Address Box 49-131 care Paper Trade Journal. M-24

## FOR SALE

Paper Mill making light weight M. G. Sulphite and specialties. Conveniently located to Eastern markets by overnight truck deliveries. Write Box 49-127 c/o Paper Trade Journal. M-17

## PRODUCTION

## PRODUCTION

## POSITIVE PICK-UP

**Wanted to correspond with paper mill making light weight wrapping papers or similar grades to discuss new idea for pick-up arrangement. This arrangement will positively eliminate blowing on transfer roll regardless of slowness of sheet and will eliminate inherent troubles with standard pickups and enable manufacturer to operate safely on highest speeds.**

**Replies to: Box 49-137 care Paper Trade Journal.** M-17

## FOR SALE

## FOR SALE

1—Triple Effect Zaremba Evaporator, 84" diameter, each effect 1200 sq. ft. of heating surface, 440—1" steel tubes, 2 tilt traps, 2 moisture separators, interconnecting piping and barometric condenser, traps and 3 liquid level controllers. Vacuum pumps are not included. Available for immediate shipment. May be inspected at any time.

2—#420 Black & Clawson 10" x 16" Triplex Geared Stock Pumps, bronze fitted, belt drive, 30" x 10" pulley.

2—Pusey & Jones Triplex Stock Pumps, 10" diameter cylinder, 20" stroke, 25 revolutions of crank shaft will throw 469 gallons. Pumps driven on jack shaft arrangement, gear and pinion drive.

1—Duo-arrangement comprising Van de Carr patent stock inlet combined with two standard slices of 14" and 8" high standard design with center and end adjustment supports on adjustable side frames. Stock inlet Pusey & Jones design, 30" high, equipped with motor driven direct-connected perforated distributor roll, adjustable device for leveling the sheet, adjustable deckle in-plates, gauge glass and necessary supporting frames.

3—Washer Cylinders, 42" diameter x 84" face.

24—Brass Table Rolls, 7" diameter x 196" face, equipped with Timken Roller Bearings #375-372.

**Address Box 49-96**
**care Paper Trade Journal**
M-17

## CHESTNUT WET LAP FOR SALE

8 Air Dry Tons per day of pure chestnut wet lap available for immediate shipment. Write for details and sample.

**CHAS. A. SCHIEREN COMPANY**
Bristol, Va. TF

## FOR SALE

TEN (10) LODDING TYPE A MONEL BLADES .060" x 3" x 150" LONG WITH SQUARE EDGES. WRITE BOX NO. 49-147 CARE PAPER TRADE JOURNAL. M-24

## FOR SALE

## FOR SALE

44" & 65" Paper Power Cutters, like new; Coaters; Waxers; Sheeters; Die Cutters; Printers; Slitters & Rewinders. Write for Price Bulletin #155 listing over 70 Paper Converting Machines. Priced exceptionally low.

South Wabash Engineering Co. Inc.
2937 S. Wabash
Chicago, Ill. My-5

FOR SALE AND REMOVAL: Complete equipment in operating plant for the production of coated and printed paper specialties. Conversion to roll or sheet form. Includes waxer, coater, laminator, printing presses, winder and sheeter, complete with motors. For full particulars and prices address Gibbs-Brower Company, Inc., 21 E. 40th Street, N. Y. M-17

FOR SALE—62" and 106" Beloit 4 Ply Board Pasters. Now running. 62" has Papec Lining Stations. Address Box 49-104 care Paper Trade Journal. M-17

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon, Laboratory Coating and Treating Machines. New improvement. MAYER MACHINE COMPANY, Inc., 1313 Buffalo Road, Rochester 11, N. Y. TF

FOR SALE—Heavy Duty Rutherford Rotary size 38 x 50 Metal Decorating Press, semi-automatic feed, especially suitable for heavy gauge metal signs and barrels. Thomas W. Hall Company, Inc., 120 West 42nd Street, New York, 18. M-24

FOR SALE—3—S.O.S. Grocery Bag Machines (Potdevin), one Lockport garment bag machine, One Republic Notion Bag Machine with one color aniline printer, one new Guillotine, used one month. Address Box 49-148 care Paper Trade Journal. M-17

FOR SALE:—SMALL PAPER MILL-CYLINDER MACHINE. Situated advantageously to sources of raw material and sales outlet. Terms. Address Box 49-153 care Paper Trade Journal. A-7

## WANTED

## WANTED

Slitter, standard make, to handle paper 62" wide at 750 to 1000 feet per minute. Must be in first class working condition. Give full particulars and price. Reply to Box 49-119, Paper Trade Journal. M-24

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 48-223 care Paper Trade Journal. TF

# FOR SALE

1—Fourdrinier Machine. Voith inlet. Wire 121" x 61' 5½". 22" suction couch. One suction press—two conventional presses — one smoothing press. 21 dryers 60" diameter, and four felt dryers 60" diameter, and four felt dryers 48". One 8-roll and one 10-roll calender stack. One 2-drum upright slip belt reel. One 2-drum winder. Spiral bevel gear drives.

1—Fourdrinier machine, wire 110" x 60'. One Millspaugh 22" suction couch. Two main presses. 29—dryers 48" diameter. One 9-roll calender stack. One 2-spool reel. Bevel mortise gear drive.

1—Yankee Fourdrinier machine, wire 90" x 38'5". Millspaugh suction couch. Yankee dryer 10'6" dia. with pressure roll, frames, etc., English type reel. Warren winder. D. C. driving motor.

1—Fourdrinier machine, wire 81" x 50'. Millspaugh suction couch. Two main presses. One lead dryer and 18 dryers 36" dia. and two felt dryers. Three-roll calender. One two-spool reel. One M & W winder. Spiral bevel gear drives.

1—6-cylinder machine, molds 100" wide. Beloit suction drum roll. Four pair primaries. Three main presses. 66 dryers 42" dia., two calender stacks. One Black-Clawson duplex cutter. One two-spool upright reel. Spiral bevel gear drives.

1—6-cylinder machine, molds 100" wide. Beloit suction drum roll. Four pair primaries. Three main presses 66 dryers 42" dia., two calender stacks. One Black-Clawson duplex cutter. One two-spool upright reel. Spiral bevel gear drives.

## Press Sections

3—main presses complete with frames, felt equipment, press rolls 18 x 97.

5—pair Black-Clawson main press housings.

## Reels

1—132" two-spool upright slip belt.

1—Beloit 116" Uniform speed reel.

## Suction Rolls

1—Beloit suction couch 30" x 184"

1—Millspaugh suction couch 22" x 140"

1—Millspaugh suction couch 18" x 110"

1—Millspaugh suction couch 14 9/16" x 88"

3—Beloit suction presses 18" x 72"

1—Downingtown extractor roll 24" x 104"

## Rolls—Calender, press, wire, felt, etc.

We have a very large stock of various size rolls of all types.

60—Al wire rolls 7 x 86

## Winders

1—72" Cameron, Model 10-5

1—116" Moore & White 4-drum, 60" dia. rolls

1—120" Warren

## Beaters

3—Dilts iron tub high speed bandless. Rolls 56 x 48. Texrope drives—Taylor recording instruments.

## Calenders

1—4-roll heavy duty calender stack, 84" wide

1—7-roll heavy duty calender stack, 84" wide

1—4-roll heavy duty calender stack, 92½" wide

1—9-roll heavy duty calender stack, 92½" wide

1—4-roll duty calender stack, 104" wide

1—7-roll heavy duty calender stack, 108" wide

1—11-roll heavy duty calender stack, 108" wide

1—9-roll heavy duty calender stack, 124" wide

Several good heavy box type calender housings. Hundreds of good calender rolls ranging from 54" to 143" face of various diameters.

1—54" 7-roll super calender

1—74" 7-roll super calender

## Classifiners

3—Dilts classifiners

## Cutters

1—109" Hamblet duplex cutter

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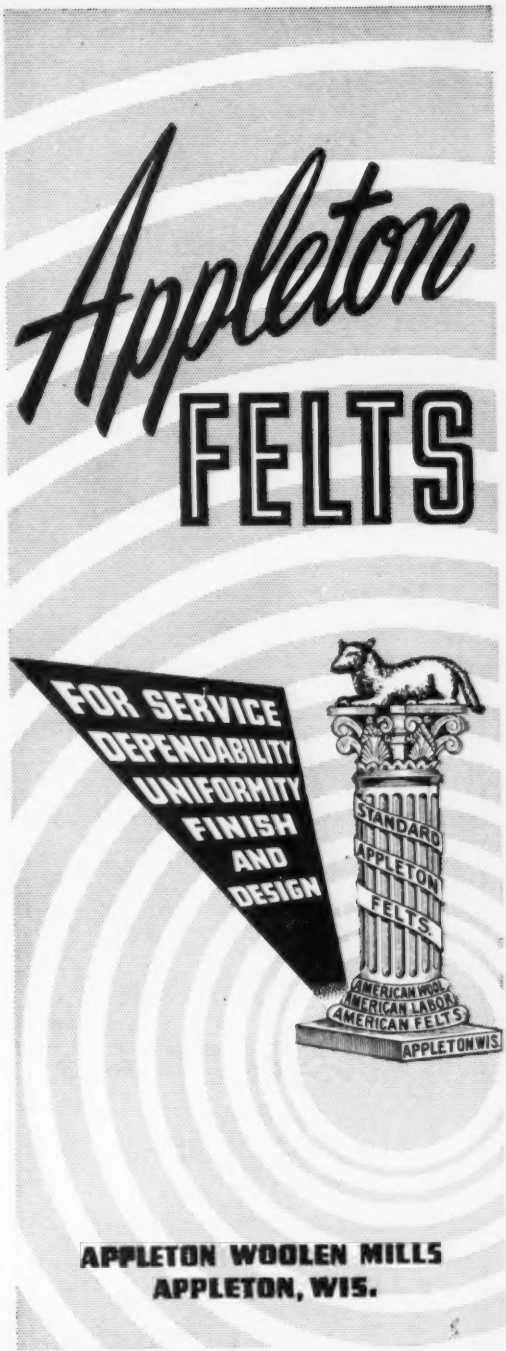

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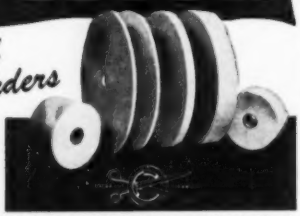

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Link-Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Corp.

**Grinders**
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

**Grinding Wheels**
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company

**Guides, Web**
Askania Regulator Company
The Moore & White Co.
Mount Hope Machinery Co.
Bound Brook Engrg. Co.

**Gums**
National Starch Products Inc.
Stein-Hall Co., Inc.

**Heads**
Babcock & Wilcox Co.
Lukens Steel Company

**Heat Exchangers and Recovery Systems**
William Allen Son's Company
Foster Wheeler Corp.
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

**Heating, Ventilating & Air Conditioning**
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Leeds & Northrup
Minneapolis-Honeywell Regulator Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

**Hoists**
Appleton Machine Co.
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.

**Hose** (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company
Raybestos-Manhattan Inc., Manhattan Rubber Division

**Impregnants**
American Anode Div., The B. F. Goodrich Chem. Co.

**Industrial Tractors**
Clark Equipt. Co., Clark Trac-tractor Div.
Towmotor Corp.

**Ink Gravure**
Gotham Ink & Color Co.

**Instruments, Testing and Measuring**
Askania Regulator Company
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taylor Instrument Cos.
Testing Machines, Inc.
Williams Apparatus Co., Inc.

**Joints**
Johnson Corp.
Perfecting Service Corp.

**Jordan Fillings**
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

**Knives**
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Taylor Stiles & Co.
Valley Iron Works Co.

**Knot Boring Machines**
DeZurik Shower Company

**Laboratory Equipment**
William Allen Son's Company
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Taylor Instrument Companies

# to Buy

Testing Machines, Inc.
Valley Iron Works Co.

**Lay Boys**
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.
Suburban Machine Co.

**Lubricants**
Sinclair Refining Co.
Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

**Materials Handling**
Cleveland Crane & Engrg. Co.
The Wellman Engrg. Co.

**Micrometers & Calipers**
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

**Moisture Content Control**
Askania Regulator Company
Stickle Steam Specialties Co.

**Motors and Generators**
Allis-Chalmers Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.

**Nickel and Nickel Alloys**
The International Nickel Co.

**Nozzles**
Link Belt Company

**Packing Boxes**
Johnson Corporation
The Moore & White Co.
Perfecting Service Corp.
Shartle Brothers Machine Co.

**Packing**
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.

**Paint**
American Marietta Co., Valdura Division

**Paper Machines**
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

**Paper Machine Slices**
Black-Clawson Company
E. D. Jones & Sons Co.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

**Paper Tube Machinery**
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Suburban Machine Co.

**Pasting Machines**
Black-Clawson Company
Davis, Frank H., Co.
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

**Penstocks**
The Biggs Boiler Works Co.

**Perforated Metal**
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.

**Pipe**
American Cast Iron Pipe Co.
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Johns-Manville Sales Corp.
Ladish Company
Michigan Pipe Co.
Michigan Steel Casting Co.
National Tube Co.
Stowe-Woodward, Inc.
Walworth Company
Youngstown Welding & Engrg. Co.

**Pipe Fittings**
American Cast Iron Pipe Co.
The American Rolling Mill Co.
Crane Company
Ladish Company
Michigan Steel Casting Co.
Phoenix Products Co.
Walworth Co.

**Pitch Control**
General Dyestuff Corp.
Monsanto Chemical Company
Rohm & Haas Co.

**Platers**
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

**Plates**
Armco Steel Corp.
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
J. O. Ross Engrg. Corp.
Lukenweld
Lukens Steel Company
Timken Roller Bearing Co.

**Plugs**
The Appleton Machine Co.
Black-Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

**Precision Sample Cutter**
Testing Machines, Inc.

**Preservatives**
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

**Pressure Vessels, Steel and Alloy**
William Allen Son's Company
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
Combustion Engrg. Co., Inc.
General American Transportation Corp.
Foster Wheeler Corp.
The Midvale Company

**Presses**
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
The Moore & White Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

**Pulp Classifier**
The Bauer Bros. Co.

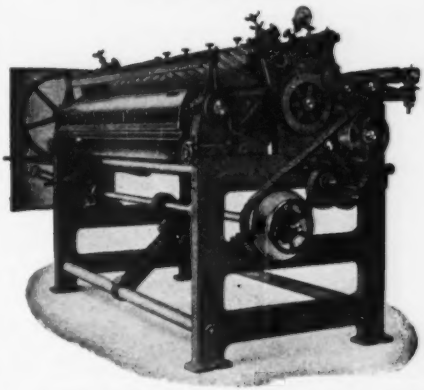
**Pulp Stock Valves**
Crane Company
Record Fdy. & Mach. Co.
Shartle Bros. Mach. Co.

**Pulpers**
Bauer Brothers Co.
Dilts Machine Works
Shartle Brothers Machine Co.

**Pulps**
Brown Company
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.


MODEL 28

ROLLER BEARING CUTTER



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**INTERNATIONAL WIRE WORKS**
**Fourdrinier Wires**
MENASHA, WISCONSIN


Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Pulp Sales Corp.

**Pulpstones**
Norton Company

**Pumps**
Allis-Chalmers Mfg. Co.
American Paper Mchy. & Engrg. Works, Inc.
American Well Works
Black-Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
Dorr Company
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Frederick Iron & Steel, Inc.
Gibbs-Brower Company, Inc.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Paper Converting Mch. Co.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company

**Radiant Burners**
Red-Ray Mfg. Co., Inc.

**Rag Cooking Processes**
Adell Chemical Co.
William Allen Son's Company
The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

**Rag Cutters**
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

**Recausticizing Plants**
General American Transportation Corp.

**Recovery Systems**
William Allen Son's Company
American Well Works
Babcock & Wilcox Co.
Bulkley, Dunton Pulp Co., Inc.
Combustion Engrg. Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

**Reels**
The Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Hudson Sharp Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

**Refiners**
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
The Hermann Mfg. Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sutherland Refiner Corp.
Valley Iron Works

**Regulators**
Allis-Chalmers Mfg. Co.
American Paper Mchy. & Engrg. Works, Inc.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
Cochrane Corp.
DeZurik Shower Company
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
Minneapolis-Honeywell Regulator Co.
National Technical Laboratories
Paper and Industrial Appliances
Shartle Brothers
Stickle Steam Specialties Co.
Taylor Instrument Companies
Wallace & Tiernan

**Resins**
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Rohm & Haas Co., Resinous Products Div.

**Rolls**
American Cast Iron Pipe Co.
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
The Midvale Company
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
Raybestos-Manhattan Inc., Manhattan Rubber Division
J. J. Ross Company
Ross Paper Machy. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Stowe-Woodward, Inc.
Valley Iron Works Co.
Waldron Corp., John
The Youngstown Welding & Engrg. Co.

**Roll Covers**
The Cincinnati Rubber Mfg. Co.
The Goodyear Tire & Rubber Company
Raybestos-Manhattan Inc., Manhattan Rubber Division
Stowe-Woodward, Inc.

**Roll Stands**
Cameron Machine Co.
Frank W. Egan & Co.
Moore & White Co.
Potdevin Machine Co.
John Waldron Corp.
H. G. Weber & Co., Inc.

**Roofing Materials**
Johns-Manville Sales Corp.

**Rope Carriers**
The Moore & White Co.

**Rotary Boilers**
The Biggs Boiler Works Co.

**Rotary Steam Joints**
Johnson Corp.
The Moore & White Co.
Perfecting Service Corp.

**Rubber Products**
The Goodyear Tire & Rubber Company
Raybestos-Manhattan Inc., Manhattan Rubber Division
Stowe-Woodward, Inc.

**Saturants**
American Anode Div., The B. F. Goodrich Chem. Co.

**Saturating Machines**
Black-Clawson Company
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

**Savealls**
Bird Machine Company
Hardinge Company

**Scales**
Fairbanks, Morse & Co.
Merrick Scale Mfg. Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

**Screen Plates**
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.
Union Machine Co.
Union Screen Plate Co.

**Screens**
Allis-Chalmers Mfg. Co.
American Paper Mchy. & Engrg. Works, Inc.

# Where

# to Buy

American Well Works
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Harrington & King Perforating Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Trimbey Mach. Wks.
Valley Iron Works Co.

## Sheet Machines

Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
The Hermann Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.

## Shower Pipes

Bird Machine Company
DeZurik Shower Company
Downingtown Mfg. Co.
Moore & White Co.
Sandusky Fdy. & Mch. Co
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co

## Shredders

Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.

## Sizing

American Cyanamid Company, Industrial Chemicals Division
Black-Clawson Company
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
Monsanto Chemical Company
National Aluminate Corp.
Philadelphia Quartz Co
Stein-Hall Co., Inc.

## Sizing Tester

W. & L. E. Gurley

## Slime Control

Buckman Laboratories, Inc.
W. A. Cleary Corp.
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
Mallinckrodt Chemical Wks.
National Aluminate Corp.
Rohm & Haas Co.

## Slitters

Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Machinery & Prod. Engrg. Corp.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John

## Smoke Stacks

William Allen Son's Company
The Biggs Boiler Works Co.

## Splicing Tissue

Williams-Gray Co.

## Softness-Stiffness Tester

W. & L. E. Gurley
Testing Machines, Inc.

## Soluble Oils

Adell Chemical Company
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

## Solvents

Adell Chemical Company

## Stainless Steel

American Cast Iron Pipe Co.
Armco Steel Corp.
Ingersoll Steel Div., Borg-Warner Corp.
Michigan Steel Casting Co.
The Midvale Company
U. S. Steel Corp.

## Starch

American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Clinton Industries, Inc.
National Starch Products Inc.
Stein-Hall Co., Inc.

## Steam Joints

The Moore & White Co.

## Steam Specialties

Babcock & Wilcox Co.
Cochrane Corp.
Combustion Engrg. Co., Inc
Johnson Corp.
Perfecting Service Corp.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co

## Steel

Armco Steel Corp.
Carnegie Illinois Steel Co.
Ingersoll Steel Div., Borg Warner Corp.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

## Steel, Clad

Babcock & Wilcox Co.
Lukens Steel Company

## Steel Plate Shapes and Treads

By-Products Steel Co.

## Steel Tanks

William Allen Son's Company
The Biggs Boiler Works Co.

## Strapping & Strapping Machines

The Stanley Works

## Stuff Chests

Downingtown Mfg. Co.
E. D. Jones & Sons Co
Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

## Suction Boxes

Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co

## Suction Unit

Paper & Industrial Appliances, Inc.

## Sulphur

American Cyanamid Company, Industrial Chemicals Division
Texas Gulf Sulphur Co.
Witco Chemical Company

## Sulphur Burners

Valley Iron Works Co.

## Sulphur Dioxide

Ansul Chemical Company
Virginia Smelting Co.

## Supercalenders

The Appleton Machine Co.
B. F. Perkins & Son, Inc.

## Synthetic Latices

American Anode Div., The B. F. Goodrich Chem. Co.
The Goodyear Tire & Rubber Company
Nopco Chemical Co.

## Tachometers

The Brown Instrument Co.

## Tale

American Cyanamid Company, Industrial Chemicals Division
W. H. Loomis Talc Corp.

## Tank Cars

General American Transportation Corp.

## Tank Cleaning Tools

Aurand Mfg. & Equipt. Co.

## Tanks

William Allen Son's Company
The Biggs Boiler Works Co.
Cochrane Corp.
General American Transportation Corp.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
Raybestos-Manhattan Inc., Manhattan Rubber Division
B. F. Perkins & Son, Inc.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co
Stowe-Woodward, Inc.
Waldron Corp., John

## Tearing Testers

Testing Machines, Inc.

## Tensile Testers

B. F. Perkins & Son, Inc.
Testing Machines, Inc.

## Thickeners, Deckers and Saveralls

American Well Works
The Appleton Machine Co.
Bird Machine Company
Bulkley, Dunton Pulp Co., Inc.
Carthage Machine Co.
Chesney Bigelow Wire Works
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
General American Transportation Corp.
Hardinge Co., Inc.
Improved Paper Machy. Corp.
Moore & White Co.
D. J. Murray Mfg. Co.
Oliver United Filters, Inc
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

## Titanium

E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

## Tools

Ingersoll-Rand Co.
The Stanley Works
Walworth Company

## Tractors & Trucks

Towmotor Corp.
Clark Equipt. Co., Clark Tractor Div.

## Transmissions

Link Belt Company

## Traps

Armstrong Machine Works
Cochrane Corp.
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

## Tubes

Babcock & Wilcox Co.
National Tube Co.

## Tubing, Mechanical

National Tube Co.

## Tubs

Rodney Hunt Machine Co.
Shartle Brothers
Valley Iron Works Co.

## Turbines

Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.

## Turpentine Recovery

Foster Wheeler Corp.

## Used Equipment

Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machy. Corp.
Shartle Brothers Machine Co.
Suburban Machine Co.

## Valves

Askania Regulator Co.
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
Crane Company
Dilts Machine Works
The Foxboro Company
E. D. Jones & Sons Co
Magnus Metal Corp.
D. J. Murray Mfg. Co.
William Powell Co.
Record Fdy. & Mch. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies
Trimbey Mach. Wks.
Valley Iron Works Co.
Walworth Company

## Vats & Vat Parts

Union Machine Co.
Union Screen Plate Co.

## Washers

Bird Machine Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Oliver United Filters
The Sandy Hill Iron & Brass Works
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

## Waste Treating Equipment

Alhydro, Inc.
American Well Works

## Water Conditioning

Alhydro, Inc.
American Well Works
Calgon, Inc.
Cochrane Corp.
General Dyestuff Corp.
National Aluminate Corp.

## Water Dispersions

Alhydro, Inc.
American Anode, Inc.
Rohm & Haas Co., Resinous Products Div.

## Waxes

Hercules Powder Co.

## Waxing Machinery

Black-Clawson Co.
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

## Welding Equipment

Allis-Chalmers Mfg. Co.
General Electric Company
Walworth Company

## Wet Machines

Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Pusey & Jones Company
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

## Wetting Agents

American Cyanamid Company, Industrial Chemicals Division
Adell Chemical Company
General Dyestuff Corp.
Hercules Powder Co.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co
Wyandotte Chemicals Corp.

## Winders and Rewinders

The Appleton Machine Co.
Black-Clawson Company
Cameron Machine Co.
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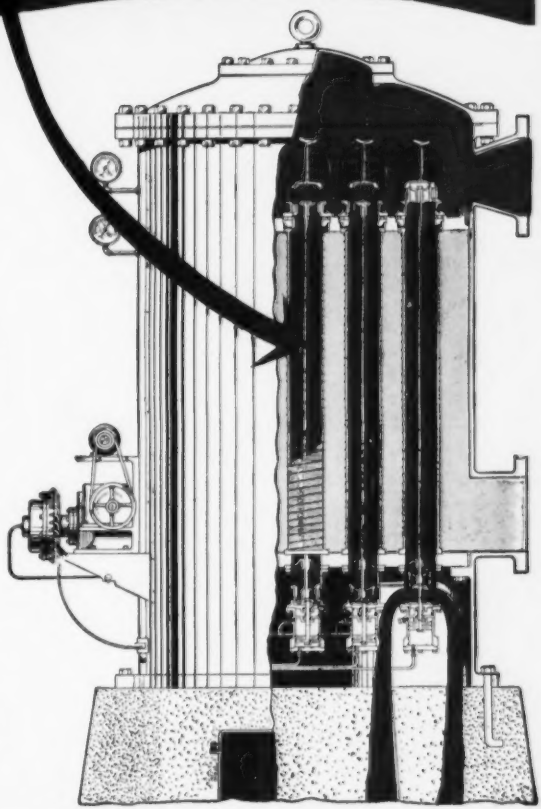

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